Inter-Tribal Heart Project

Results from the Cardiovascular Health Survey

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Inter-Tribal Heart Project: Results from the Cardiovascular Health Survey

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Keshena, WI

Red Lake Tribal Council
Red Lake, MN

White Earth Tribal Council
White Earth, MN

Indian Health Service
Washington, DC

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Introduction

Our life is fragile. We are surrounded by the most powerful nation on earth, and our history with it has not always been good. Their values are not our values, and their desires for us have not always been ours. Yet we coexist and we share, and our histories are intertwined.

In the forward of To Walk the Red Road:
Memories of the Red Lake Ojibwe People/Project Preserve[1]

Contemporary stereotypes and misunderstandings conceal historical processes that have created current conditions.

Melissa Meyer, The White Earth Tragedy[2]

The further back we go on the chain of events that leads to a problem, the stronger the healing can be.

Hilary "Sparky" Waukau, Menominee

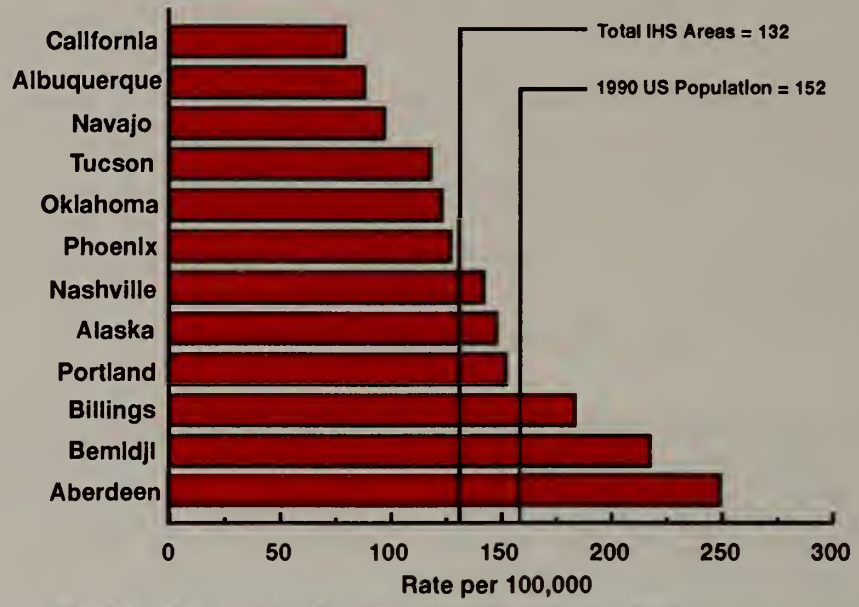
The leading cause of death among American Indians and Alaska Natives is cardiovascular disease (CVD). For many American Indians, CVD and other chronic diseases are perceived as "new diseases" or "western diseases."[3-5] Infectious diseases used to be the major source of morbidity and mortality among American Indians; many tribes were decimated by the infectious diseases the Europeans brought with them.[6,7] The transition from infectious diseases to chronic diseases (such as CVD, diabetes, and cancer) as the leading causes of death and disease is referred to as the epidemiologic transition.[3,5] An epidemiologic transition usually occurs within the context of broad social and political changes. For American Indians, the epidemiologic transition occurred when traditional ways of life were challenged, altered, and in some cases, outlawed completely; when tribal lands were lost or taken; and when widespread poverty and the attendant conditions prevailed.[3,8] These historical features provide important information for understanding and interpreting current levels of risks for CVD among American Indians.

Although CVD is the leading cause of death among all American Indians and Alaska Natives, the mortality rates for CVD vary considerably among subgroups of American Indians and Alaska Natives. For example, the highest mortality rates for heart disease and stroke occur in the Bemidji and Aberdeen Service Areas (Figures A and B).[9] The mortality rates in these areas are almost two times greater than the average for all American Indians and Alaska Natives and approximately one and a half times greater than the average for the United States.

This report of the Inter-Tribal Heart Project presents prevalence data on the current lifestyles, use of health care services, and physiological conditions possibly related to CVD among three Indian reservations in the Bemidji Service Area. This area is in the upper midwest region of the United States and has consistently had higher rates of CVD mortality than most other Indian Health Service (IHS) Areas. The three communities that participated in the Inter-Tribal

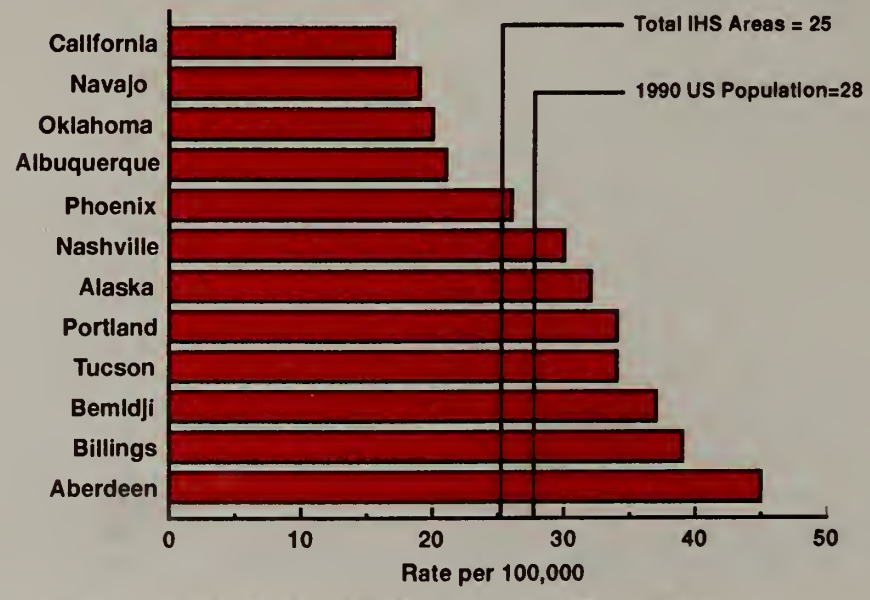
Heart Project included two Chippewa reservations in Minnesota (Red Lake, White Earth) and the Menominee Reservation in Wisconsin. All three of these reservations are rural communities, and the members of these reservations share a cultural (and possibly genetic[3]) history since they all belong to the Algonquian linguistic family.

Figure A
Age-adjusted Rates of Mortality from Heart Disease, 1989-1991, Among Indian Health Service Administrative Areas



Source: Indian Health Service. Regional Differences in Indian Health, Rockville, MD: Indian Health Service, 1994.

Figure B
Age-adjusted Rates of Mortality from Cerebrovascular Disease, 1989-1991, Among Indian Health Service Administrative Areas



Source: Indian Health Service. Regional Differences in Indian Health, Rockville, MD: Indian Health Service, 1994.

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The Bemidji Service Area and the Reservations

The Bemidji Service Area is composed of 32 tribes in four states (Indiana, Michigan, Minnesota, and Wisconsin). The largest tribes in these areas are the Chippewa, the Oneida, and the Menominee. By far the most numerous of the tribes are the Chippewa, whose bands comprise approximately 70% of the American Indian and Alaskan Native population in the Bemidji Service Area. Some other tribes indigenous to the area are the Ottawa, Potawatomi, Menominee, Ho-Chunk (formerly the Wisconsin-Winnebego), and Sioux. Two of the tribes were resettled from other areas in the United States: the Oneida, who are members of the Iroquois Federation of upstate New York, and the Strockbridge-Munsee Mohican Band, who are originally from Massachusetts.

Chippewa Tribe

Residents of the Red Lake and White Earth reservations are members of the Chippewa tribe. The name "Chippewa" is an anglicized form of "Ojibway," the name given by Europeans to a people who call themselves "Anishinabe," (which is translated as "the original people").[1] In the United States, there is general consensus among American Indians to use the name Chippewa when referring to the Anishinabe. Canadian Anishinabe, on the other hand, prefer to use Ojibway. Previously, the Chippewa lived in small bands, made up of families and clans, that were identified by their home location. For the purpose of U.S. treaties, however, the Chippewa were divided into five large bands: the Superior Band, the Mississippi Band, the Pillager Band, the Red Lake Band, and the Pembina Band. Later, when the reservations were established, members of the different bands often ended up living together. Over time, however, people have retained their identity as members of a particular band.[1]

Red Lake Reservation:

The Red Lake Band of Chippewa Indians consists of 8,677 members. About 5,500 members live on the Red Lake Reservation, which is on 835,842 acres of land and water in North Central Minnesota.[2] Within the reservation, populations are concentrated among four communities: Red Lake, Redby, Little Rock, and Ponemah. The main body of the reservation lies 100 miles south of the Canadian border and 35 miles north of Bemidji, MN. Additional reservation lands exist as small scattered parcels extending to the Canadian border. The

land is slightly rolling and heavily wooded. There are many lakes, swamps, peat bogs, and prairies, and some land on the western side is suitable for farming. The reservation is located in the center of the wild rice industry in the United States and Canada, and extensive parts of the Red Lake Reservation are cultivated for growing wild rice.

The Red Lake Band of Chippewa live on their ancestral homeland. Although they gave up large portions of land through treaties and agreements in 1864, 1889, and 1904, the Red Lake Band never ceded the area surrounding Lower Red Lake or parts of the southern half of Upper Red Lake. The current reservation is spoken of as the "diminished" land. The Red Lake reservation is legally defined as a closed reservation, wherein all land is held in trust by the tribe and no state laws apply.[3]

The main sources of income for the reservation are gaming (casino, bingo, etc.), fisheries, a construction company, a sawmill, and a tribally owned shopping center.[4,5] Other economic development projects under consideration are a wild rice processing plant, a wood fuel biomass energy plant, and a radio station.[4,5] The largest industry is fishing. The principal employers on the reservation are the Tribal Government, the Red Lake Tribal Health Services, the Indian Health Services, the Bureau of Indian Affairs, and local businessess such as fisheries, a tribal shopping center, sawmill, local logging operations, and others. An unemployment rate of 50.3% was calculated by the Bureau of Indian Affairs in 1994 for the Red Lake Reservation, which represents a steady decline in unemployment over the past four years.[6] According to the 1990 census, 8% of working age adults on or near the Red Lake reservation earn less than or equal to $7,000 per year and approximately 29% live below the poverty level.[2]

White Earth Reservation:

The White Earth Reservation is located in northwestern Minnesota, 70 miles southwest of Bemidji, MN. According to the official data profile of the Bemidji Service Area, 5,861 Chippewas lived on or near the reservation in 1991-1992; however, White Earth has a total enrollment of 20,496, making them the largest tribe by population in the Bemidji Service Area and one of the largest in the United States.[7] The name is derived from the beds of white clay that lie underneath the black topsoil. The land is rolling with several lakes and forests are of aspen, northern hardwoods, and oak.

The White Earth Reservation was originally established in 1867 by a treaty between the United States and the Mississippi Band of the Chippewa Indians. Initially, this reservation consisted of 36 townships on 796,000 acres of land that was very fertile and had many natural resources. Members from the Mississippi, Pembina, and Pillager Bands settled on the reservation in 1868. By 1910, nearly 80% of the reservation had been lost via a series of federal and state legislation as well as illegal actions.[1] In addition, during the late 1970s it was discovered that illegal tax forfeiture or other tax irregularities had occurred regarding over 100,000 acres of reservation land.[1] As of 1994, the tribe retains only about 7% of the lands assigned by the original treaty.[8]

Employment on the reservation is provided by tribal programs and enterprises such as gaming

facilities and programs, a sawmill factory, construction work, freeze-dried fishing bait, and clothing manufacturing companies. Another source of employment on the reservation is the IHS. Given the proximty of the reservation to nearby towns, some residents seek employment outside the reservations. The trees are harvested for sawtimber, sawbolts, hardwood, pulpwood, firewood, and wafer board. The western portion of the reservation is used for farming. The reservation also produces wild rice. In addition, the tribe operates the Shooting Star Casino, one of the most successful tribal business ventures, which supplies over 1,000 jobs. Economic development has been a major priority at White Earth for many years.[1] The unemployment level is 9.4%,[9] with an estimated 25% of people at or below the poverty level,[10] and average per capita income at $7,737.[11]

Menominee Tribe:

The Menominee - an Algonquian word meaning wild rice people - are Wisconsin's oldest continuous residents, having lived on this land for more than 4,000 years.[12,13] There are 7,424 members of the Menominee tribe, with 4,750 living on the reservation.[14] Tribal lands once stretched across 9,500,000 acres from the Great Lakes to the Mississippi. But through a series of treaties the Menominee were forced to cede most of their land.[4] The present Menominee Reservation was established in 1854 in a treaty with the U.S. Government. Currently, the Menominee reservation covers 234,000 acres, located in central Wisconsin 50 miles west of Green Bay, and the boundaries of the reservation are congruent with the boundaries for Menominee County.

The U.S. Government attempted to convert the Menominee to agrarians. However, the Menominee were more interested in logging for their economic base. They obtained permission from Washington to conduct their own commercial lumbering operation in 1871. In 1886 a new saw mill was opened that had the capacity to produce 15,000 board feet of lumber per day. By 1890, the Menominee provided a hospital, trade school, and police, and shared a small per capita payment from their lumbering profits. This prosperity established the Menominee as one of the most economically progressive Indian Tribes in the U.S. at the turn of the century.

In 1961, the Menominee were chosen by the federal government as the first tribe to be subject to the terms of the 1954 Termination Act. The Termination Act was an attempt to force tribes to assimilate and join the mainstream of American society. Consequently, the Menominee Reservation was abolished, the Menominee were no longer included among the federally recognized American Indian and Alaskan Native tribes, and efforts towards self-determination were prevented. These actions had severe and dramatic effects on the individuals, families, and institutions of the Menominee. Years of economic progress were wiped out and wide-spread poverty devastated the reservation. As the results of the Termination Act became evident, and civil protests mounted against it, the conditions of the Termination Act were nullified. On December 22, 1973 the Restoration Act was passed, which enabled the Menominee to regain their status as a soverign Indian Nation and allowed them to reclaim their tribal lands.

Today, the Menominee are once again on their way to economic success. The Menominee Tribal Enterprises forestry management, lumber, and saw mill businesses are nationally recognized. The Tribe operates the Menominee casino, bingo hall, and hotel, complete with convention facilities. The Menominee Tribal Clinic, built in 1977, was the first Indian owned and operated health care facility in the United States. Other major employers include the school district and tribal offices. The new College of The Menominee Nation will help lead the tribe into the 21st century.

In 1992, the unemployment rate for the Menominee, as calculated by the Wisconsin Department of Industry, Labor and Human Relations, was 18.3%.[14] The per capita income in 1990 was $5,674, which was a 61% increase since 1980. However, the per capita income for the state of Wisconsin at this time was 42.7% higher. In 1990, 48.7% of tribal members were at or below the poverty level.

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History of the Inter-Tribal Heart Project

Cardiovascular disease (CVD), which includes both heart disease and stroke, is the major cause of death among American Indians. The Bemidji Service Area, located in the upper midwest region of the United States, has consistently had higher death rates from heart disease than most other Indian Health Service (IHS) areas. In 1990, the Centers for Disease Control and Prevention (CDC) and the IHS initiated a collaborative effort to improve the cardiovascular health of the Indian people in the Bemidji Service Area.

Tribes from the Bemidji Service Area were invited to apply for participation in a CVD prevention project. Three reservations who met the criteria established by CDC, IHS, and the Bemidji Area Office Tribal Advisory Board were selected to participate. These reservations were the Red Lake Chippewa and White Earth Chippewa Bands in Minnesota and the Menominee in Wisconsin. Together, the three tribes, IHS, and CDC formed the Inter-Tribal Heart Project (ITHP). The ITHP consists of two phases: 1) a survey to measure the prevalence of factors related to CVD and 2) the establishment of appropriate community-based interventions designed to reduce the risk of CVD.

Each reservation established a program to address the goals of the ITHP. From July 1992 to June 1994, staff at each reservation conducted a survey among the residents regarding the risks for heart disease. The survey included information on biological factors (e.g., cholesterol levels, blood pressure, and weight), psychosocial factors (e.g., stress and symptoms of depression), and behavioral factors (e.g., diet, physical activity levels, and tobacco use) that are related to heart disease.

This report summarizes the data collected by the staff at each of the three reservations. It is intended to guide the planning and development of community-based programs aimed at reducing the risk of heart disease among the residents of Red Lake, White Earth, and Menominee reservations.

Methodology

Study Population

Age-stratified random samples of adults (ages 25-44 and ages 45 and older) were drawn from the Indian Health Service (IHS) Clinic User Lists in each of the three communities. The IHS Clinic User Lists include all persons who have used the local IHS/Tribal health care facility at least once during the past three years. The lists are updated periodically to remove persons who have died or moved away. Because the local health care facilities are the primary source of care and these populations tend to be highly mobile, the User Lists are considered to be the most representative lists of the populations living in the area at the time of the survey. Approximately an equal number of people from each reservation participated in the ITHP survey, for a total of 1,376 participants.

Study Design

A cross sectional survey of the adult populations in the three communities was conducted between August 1992 and July 1994. Written letters of invitation were sent to the people identified from the random sample; the letters invited them to the clinic to participate in an in-depth risk factor assessment, which included an interviewer-administered questionnaire, physical examination, and laboratory measurements. A minimum of three follow-up letters or phone calls were placed to people who did not respond to the initial letter of invitation. Transportation was arranged when necessary, and occasionally home visits were conducted. In addition, some employers gave permission for the interviews and examinations to be conducted at the workplace. People were reimbursed for their participation in the study. All participants read and signed forms acknowledging their informed consent to participate in the survey.

The questionnaire and physical examination were designed to be comparable with national health surveys and other surveys of American Indians. Extensive input regarding the relevance and appropriateness of the proposed questions was obtained from the local coordinators of the ITHP and community members via focus groups and pilot testing. The questionnaire and physical examination were administered by public health nurses who were trained in interviewer techniques and standardized procedures.

A summary of the participant's risk factor status for cardiovascular disease was prepared. One copy of the summary was given to the participant (with time for discussion), another copy was included in the person's clinical record, and a third copy was sent to the primary care physician. Conditions requiring more urgent referral were reported according to standard protocols.

Approval for the study was obtained from the Institutional Review Boards of the participating tribes, the Indian Health Service, and the Centers for Disease Control and Prevention.

Important Information to Know for Understanding the Data

This report was designed to provide the reader with a comprehensive view of the cardiovascular health profile of the communities in the Inter-Tribal Heart Project. However, in order to correctly interpret the data, it is important for the reader to be aware of the following issues:

Educational Patterns are Confounded by Age

When reviewing the patterns of risk factors across the groups of educational categories, it is important to remember that the people with the fewest years of formal education are, on average, older than people in the other education categories *(see table below)*.

This pattern is particularly important to keep in mind for characteristics known to increase with age, such as hypertension. For example, table 4.1 indicates that the percentage of people with hypertension was higher among people with less than a high school education. However, this finding may be partially because the people in this group are older and older people are more likely to have hypertension. The same may be true for findings of other characteristics that are related to age.

Average Age and Level of Formal Education

Education	Age
Did not complete high school	53
High school graduate	46
Technical School	42
Any college	46

Comparisons Across Strata Have Not Been Assessed for Statistical Significance

Although this report makes comparisons across strata of age groups, gender, education, and employment, none of the comparisons have been assessed for statistical significance. Additional statistical procedures, which are beyond the scope of this report, would indicate the likelihood it is that the prevalence for one group really is higher or lower than another group. In the absence of those statistical tests, the patterns observed across the strata can be interpreted as suggestive of the true pattern. However, further analyses are needed to verify the patterns.

Comparisons of Data From the Inter-Tribal Heart Project (ITHP) with National Data for the United States May Be Confounded by Age

Many of the figures compare results from the ITHP with results from national surveys. However, it is important to take into consideration that the age group and the age distribution of the participants in the ITHP may be different from those of the national surveys. In general, the age distribution of the participants in the ITHP tends to be skewed more toward younger people. This is important to take into consideration when comparing characteristics that are related to age. Each of the figures lists the age groups for each of the surveys; however, the data in the figures are not adjusted for differences in age distributions.

Definitions of Terms

The following table lists definitions of the terms used in this report.

Term	Definition	Reference
Cardiovascular disease (CVD)	Disruption of the circulatory system of the heart and blood vessels. Major forms of cardiovascular disease are ischemic heart disease and stroke.	
Current cigarette smoking	Have smoked at least 100 cigarettes in one's life time and currently smoke cigarettes.	Brownson RC, Remington PL, Davis JR (eds). *Chronic Disease Epidemiology and Control.* Washington, DC: American Public Health Association, 1993:199 200.
Diabetes	Preexisting diabetes, a fasting serum glucose level of ≥140 mg/dl or 2-hour glucose level of ≥200 mg/dl after a 75 oral glucose tolerance test, or taking medication for diabetes. This definition is used by the World Health Organization.	Harris, MI. Classification and diagnostic criteria for diabetes and other categories of glucose intolerance. In: Harris, MI (ed). *Diabetes in America.* Washington, DC: US Department of Health and Human Services, 1985, pages 1 10. NIH Publication No. 85-1468.
Elevated cholesterol	Serum total cholesterol level ≥240 mg/dl. (This definition is used by the National Cholesterol Education program.)	National Heart, Lung, and Blood Institute. *The Second Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults.* Bethesda, MD: National Heart, Lung, and Blood Institute, 1993. NIH Publication No. 93-3095.

Term	Definition	Reference
Food habits		
Fruits and Vegetables	The Healthy People 2000 Objective 2.5 includes increasing complex carbohydrate and fiber-containing foods in the diets of adults to 5 or more daily servings from the vegetable and fruit group (raw, cooked, or juices) and to 6 or more servings of grain products (breads, cereals, pasta, and starchy vegetables). Servings were defined as 1/2 cup.	U.S. Department of Health and Human Services. *Healthy People 2000: National Health Promotion and Disease Prevention Promotion Objectives.* Washington, DC: US Department of Health and Human Services, 1991. DHHS Publication No. (PHS) 91-50213. American Heart Association. *The American Heart Association Diet: An Eating Plan for Healthy Americans.* Dallas, TX: American Heart Association, 1991.
Salt Intake	The Dietary Guidelines for Americans recommend using salt sparingly, if at all, in cooking and at the table. This behavior was defined as "rarely or never adds salt to food at the table."	U.S. Department of Agriculture. *Dietary Guidelines for Americans.* Washington, DC: US Department of Agriculture, 1990. Publication No. 261-495/20124.
Fat Intake	To decrease fat, saturated fat, and cholesterol in the diet, the Dietary Guidelines for Americans recommends using fats and oils sparingly in cooking or to choose liquid vegetable fats most often because they are lower in saturated fat. This behavior was defined as either "does not add fat to cooked vegetables" or "most usually adds any liquid cooking oils (vegetable oils) to cooked vegetables."	U.S. Department of Agriculture. *Dietary Guidelines for Americans.* Washington, DC: US Department of Agriculture, 1990. Publication No. 261-495/20124.

Term	Definition	Reference
High blood pressure	Systolic blood pressure 140 mmHg; diastolic blood pressure ≥90 mmHg; or currently taking medication to lower blood pressure level. (This definition is used by the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure.)	National Heart, Lung, and Blood Institute. *The Fifth Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure.* Bethesda, MD: National Heart, Lung, and Blood Institute, 1992.
Hopelessness	Degree of hopelessness was measured using the following question from the General Well-Being Schedule: "In the past month, have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?"	Dupuy HJ. A concurrent validational study of the NCHS general well-being schedule. *Vital & Health Statistics,* Series 2, No. 73. Washington, DC: US Government Printing Office, 1977. Department of Health Education and Welfare Publication No. (HRA) 78-1347.
Impaired glucose tolerance	A 2-hour serum glucose level ≥140 and <200 mg/dl after a 75 gram oral glucose tolerance test. (This definition is is used by the World Health Organization.)	Harris MI. Classification and diagnostic criteria for diabetes and other categories of glucose intolerance. In: Harris MI (ed). *Diabetes in America.* Washington, DC: US Department of Health and Human Services, 1985, pages 1-10. NIH Publication No. 85-1468.
Ischemic heart disease	Disruption of blood supply to the heart caused by narrowing of the coronary arteries	
Leisure time physical activity	Inactive: Engaged in no leisure time physical activity during the previous 12 months. Regularly active: Engaged in leisure time physical activity 3 or more times per week, and 20 minutes or more per session.	Fletcher GR, Blair SN, Blumenthal J, et al. Benefits and recommendations for physical activity programs for all Americans. A statement for health professionals by the Committee on Exercise and Cardiac Rehabilitation of the Council on Clinical Cardiology, American Heart Association. *Circulation* 1992;86(1):340 344.

Term	Definition	Reference
Overweight and obesity	The body mass index (BMI) was used to define categories of overweight and obesity. BMI is calculated as weight (kg)/ height $(m)^2$. The categories are defined differently for women and men: Overweight: *Women:* BMI ≥ 27.3 *Men:* BMI ≥ 27.8 Obesity: *Women:* BMI ≥ 32.3 *Men:* BMI ≥ 31.1 (These cutpoints for overweight and obesity are the standard cutpoints currently used for the majority of health surveys. They are based on the distributions of BMI for the US population age 20-29 as estimated from the National Health and Nutrition Examination Survey II, 1976-1980. Overweight is defined at 85th percentile and obesity is defined at the 95th percentile.)	Najar MF, Rowland M. Anthropometric reference data and prevalence of overweight, United States, 1976 1980. *Vital and Health Statistics,* Series 11, No. 238. Washington, DC: Public Health Service, National Center for Health Statistics, 1987.
Stress	Self-perceived stress was assessed with the question: "During the past 2 weeks, would you say that you experienced a lot of stress, a moderate amount of stress, relatively little stress, or almost no stress at all?"	Health Promotion and Disease Prevention, United States, 1990. *Vital and Health Statistics*, Series 10, No. 185. Hyattsville, MD: US Department of Health and Human Services, 1993. Publication No. PHS 93-1513.
Stroke	Disruption of blood supply to the brain.	

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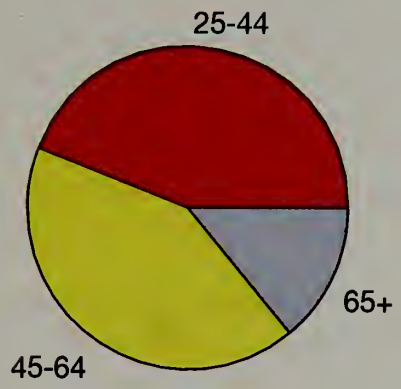
Demographics

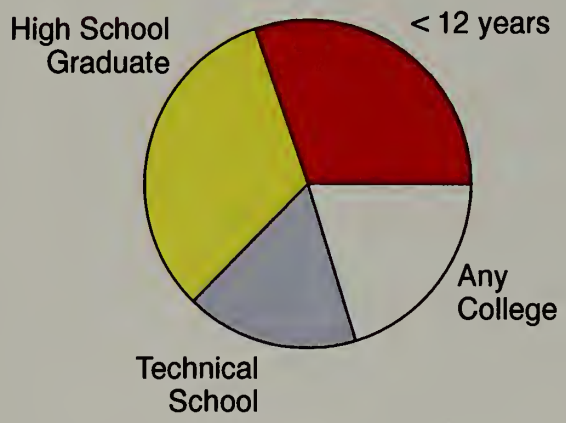
A total of 1,376 people participated in the Inter-Tribal Heart Project (ITHP) (*Table 1.1*). Sixty-three percent of the participants were women (n=866) and 37% were men (n=510). The majority of the participants were between the ages of 25 and 64 years, and 14% were above the age of 65. The educational profile of the participants shows that 30% had not completed high school, 32% were high-school graduates who had not received additional formal education, 17% had attended technical school, and 20% had attended college. Slightly more participants had household incomes of ≥$15,000 per year (47%) than household incomes of <$15,000 (43%). More men than women were unemployed (42% vs. 38%).

The 1,376 people who participated in the ITHP represent 65% of the people from the random sample who were eligible to participate in the survey (*Table 1.2*). The participation rates were higher among women (71%) than among men (58%). Nineteen percent of the eligible people from the random sample refused to participate, and 14% scheduled appointments but did not show up. The people who were identified as part of the random sample but were ineligible to participate were those who had died (n=252), were known to have permanently moved away (n=941), were not located after at least three letter or phone invitations (n=1279), people who were not Native Americans (n=18), or were no longer listed on the active files of the clinic (n=88).

Distribution of ITHP Participants by Age Group and Education



Age Group



Education

Health Care Access and Use

At the time of this survey, the Indian Health Service (IHS) was responsible for providing health care services to federally recognized American Indian tribes and Alaska Natives.[1] The IHS provided health care directly through IHS facilities and purchases additional services through contractual arrangements with the tribes and other sources of health care. Because the IHS in not an entitlement program, it can only provide services based on the amount appropriated by the US Congress. This process results in changes in the range of health care services that are available from year to year.[1] Since the survey's completion, new funding mechanisms have been instituted by the Tribes and the Federal government to facilitate Indian self-determination. The future impact of these mechanisms, called Title I and Title III, on accessibility of health care is unknown.

Health care utilization and accessibility in the three rural ITHP communities were determined by asking the ITHP participants where they usually go to get health care, the average number of miles between their home and the place they usually go to obtain health care, and if there was ever a time during the previous 2 years when they needed or wanted medical care but could not get it.

The most common source of usual health care was an IHS or tribal clinic (*Table 2.1*). Eighty-seven percent of the ITHP participants reported that their usual source of health care was an IHS or tribal clinic, 6% reported that they usually obtained health care from a non-IHS or nontribal facility, and 5% reported that a private physician was their usual source of care.

Participants reported that, on average, the distance they traveled from their home to an IHS or tribal clinic was 11 miles (*Table 2.1*). This distance was less than the average distances reported to obtain health care from other sources.

Twelve percent (12%) of all participants (women:13%; men:11%) reported that within the last 2 years they were unable to obtain needed medical care on at least one occasion (*Table 2.1*). In general, younger adults were more likely than older adults to indicate this problem had occurred. No consistent pattern of obtaining care was observed across categories of education, household income, or employment status. Among the participants who had been unable to obtain wanted or needed medical care in the last 2 years, the most common barriers they reported were "waiting time to see a doctor is too long" (47%), "other" (24%), and "transportation is a problem" (13%).

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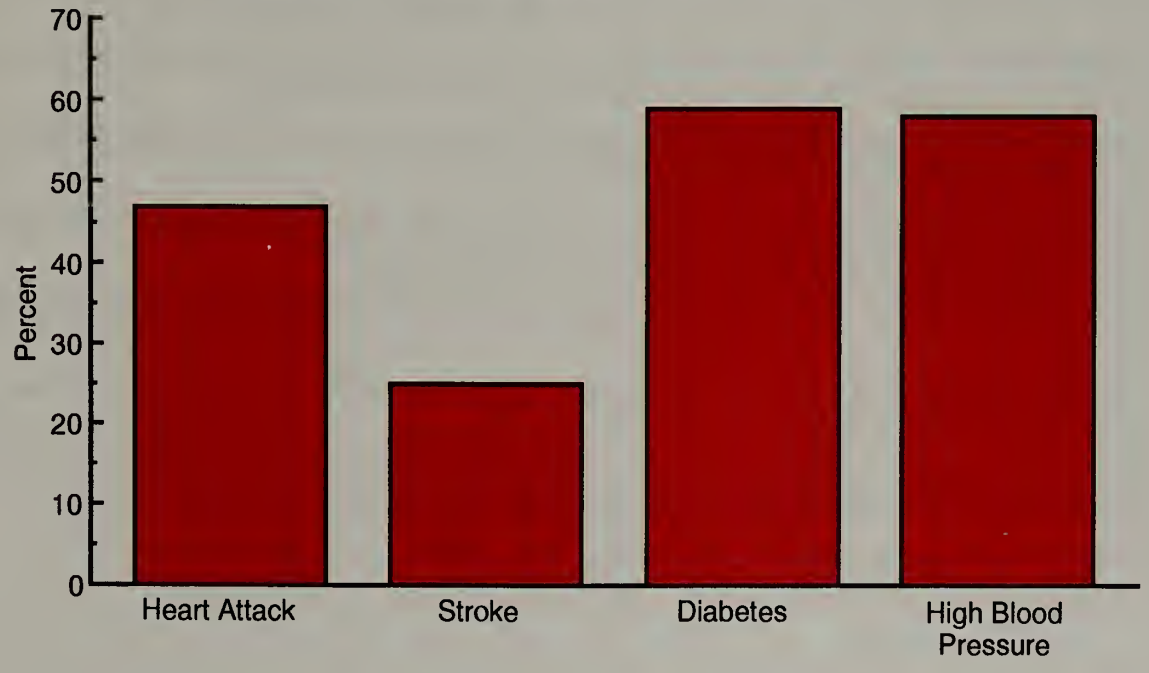
Family and Medical History

There is substantial evidence of the role of familial influences on the occurrence of early coronary heart disease (CHD) and the presence of major risk factors for cardiovascular disease (CVD).[1-3] In general, people whose parents died of CHD at a relatively young age have the highest rates of heart disease and tend to develop heart disease at a young age.[4,5] Where both parents had CHD at a young age, the children have an even higher risk for developing CHD. In addition, many studies document the tendency for the prevalence of adverse risk factors for CVD (hypertension, hypercholesterolemia, glucose intolerance, and obesity) to be higher among first-degree relatives of CHD patients than among the general population.[6-12] This tendency is particularly striking when the family member suffered from CHD at a young age. A combination of genetic and environmental factors is thought to contribute to the strong impact of family history on the risk of developing CVD.

The importance of family history of CHD has several practical implications for the prevention of CHD. For people with a family history of CHD (especially if the family member experienced CHD early in life), the health care professional should be sure to determine whether the patient has other known risk factors for CHD and encourage the patient to be more persistent in attempting to lower borderline levels of adverse risk factors.

People who have experienced a nonfatal heart attack are at greater risk of having a recurrent heart attack or a stroke than people who have not had a heart attack.[13,14] Similarly, the occurrence of a stroke places an individual at increased risk for having another stroke. For

Figure 3.1
Percent of Participants with a Family History of Cardiovascular Disease, Inter-Tribal Heart Project, 1992-1994



people that have suffered from either a heart attack or a stroke, secondary prevention activities are important because they may be able to reduce their risk of experiencing a recurrent event.[13]

Participants in the ITHP were asked whether their biological parents or siblings had ever been told by a doctor that he or she had diabetes, high blood pressure, a stroke, a heart attack, or kidney disease. As part of the medical history, participants were also asked if a doctor or nurse had ever said they had a series of conditions, including a heart attack or a stroke.

Among the participants in the ITHP, ages ≥25 years, the prevalence for family history of CVD was quite high (*Figure 3.1*). Forty-seven percent of the participants had a family history of heart attacks, and 25% had a history of stroke. The prevalences for family history of diabetes (59%), high blood pressure (58%), and kidney disease (12%) were also high. These prevalences are in keeping with the excessively high rates of CVD mortality that are observed among these communities.[15]

A larger percentage of participants had experienced a heart attack (9%) than a stroke (4%) (*Tables 3.1, 3.2*). The prevalences of nonfatal heart attacks and strokes increased dramatically with age and were higher among people with fewer years of formal education, <$15,000 annual household income, and not currently employed.

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Hypertension

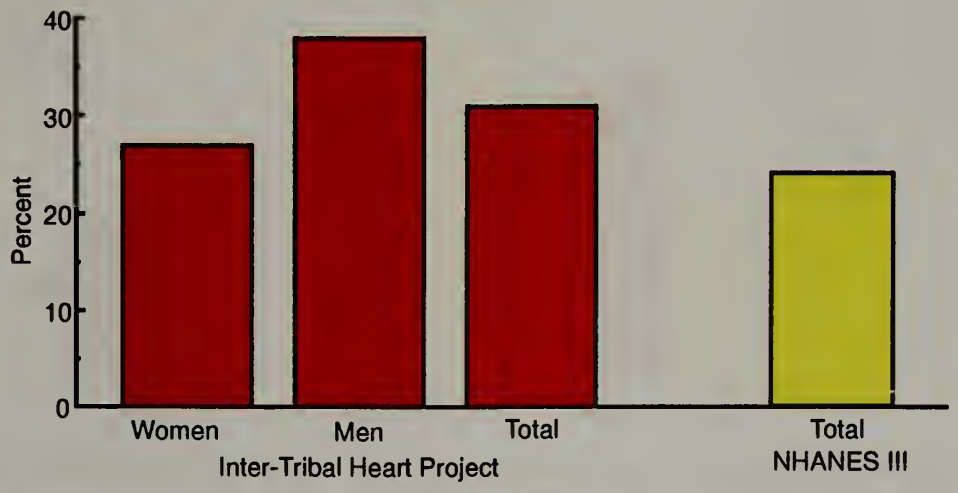
Hypertension, a term that refers to high levels of blood pressure, is one of the major risk factors for CVD. Studies have shown that high blood pressure is associated with an increased risk of developing CHD, stroke, congestive heart failure, renal insufficiency, and peripheral vascular disease.[1-3] In addition, the risk of CVD is known to increase as the levels of systolic blood pressure (SBP) and diastolic blood pressure (DBP) increase.[4,5]

There are three basic strategies to reduce the risk of CVD that is associated with hypertension: 1) prevent high blood pressure from developing (primary prevention), 2) use medication to reduce the level of blood pressure (secondary pharmacologic prevention), and 3) use nonmedical activities (e.g., diet and physical activity) to reduce the level of blood pressure (e.g., secondary nonpharmacologic prevention).

In this report, hypertension is defined as SBP of ≥140 mmHg, DBP of ≥90 mmHg, or currently taking antihypertensive medication.[6] Blood pressure was measured in a seated position on the right arm after a 5-minute rest, by using the appropriate size cuff, the bell of a standard stethoscope, and a Baum mercury sphygmomanometer. The first and fifth phases of the Korotkoff sounds were recorded. Three consecutive measures of blood pressure were performed, and the mean of the last two measurements was used to estimate the blood pressure.

The prevalence of hypertension among the ITHP participants, ages ≥25 years, was 31% (*Table 4.1*). The prevalence of hypertension was higher among men (38%) than women (27%). These prevalences are higher than the US average (24%) reported for ages ≥18 years from the third National Health and Nutrition

Figure 4.1
Percent of Participants with Hypertension in the Inter-Tribal Heart Project and the Third National Health and Nutrition Examination Survey



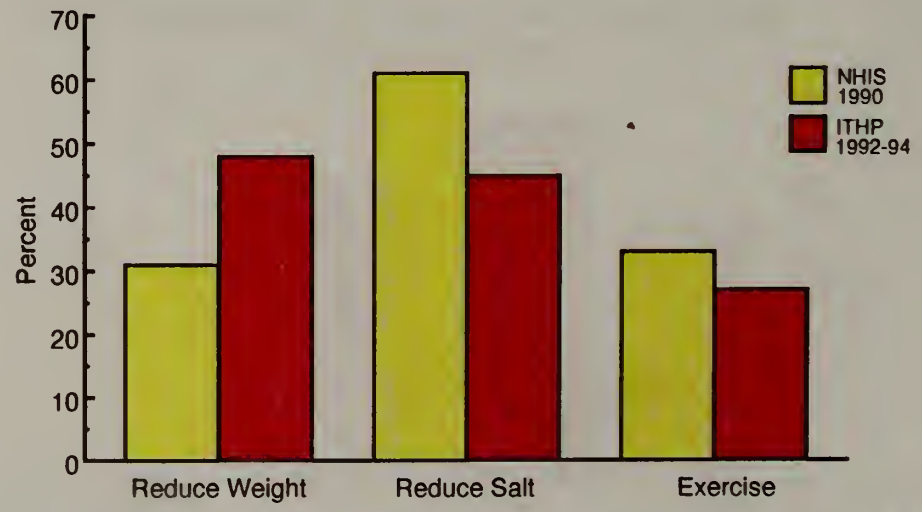
Hypertension: Systolic blood pressure ≥140 mm Hg, diastolic blood pressure ≥90 mm Hg, or on antihypertensive medication.
NHANES III: Third National Health and Nutrition Examination Survey, 1988-1991, Ages 20+ (Ref. No. 6).

Examination Survey (NHANES III)[6] (*Figure 4.1*). The prevalence of hypertension differed substantially by level of income, employment status, and educational attainment; hypertension was more prevalent among people with annual incomes of < $15,000, those who were unemployed, and those with < 12 years of formal education. (See page 13 for discussion of educational patterns.) Similar patterns of hypertension with income, employment, and education have been observed in other communities.[7-9]

Among the participants in the ITHP study who had hypertension, 60% reported taking medication to lower their blood pressure (*Table 4.2*). However, among the participants who reported taking medication, only 28% had their blood pressure level under control (i.e., SBP <140 mm Hg or DBP <90 mm Hg) (*Table 4.3*). The relatively small prevalences of controlled hypertension were observed for both women and men. These data suggest that although people in the community have access to antihypertensive medications, for the majority of the people with high blood pressure there are other factors that limit their ability to sufficiently reduce their blood pressure levels.

Sixty percent of the people with hypertension reported using nonpharmacologic activities to lower their blood pressure levels (*Table 4.4*). These activities included watching their weight, exercising, and following a low-salt diet and may have been done in conjunction with taking medication to reduce their blood pressure levels. Among these three activities, people were most likely to be watching their weight and least likely to be exercising (*Table 4.5*). People in the youngest age group of ITHP participants (20-44 years) were the least likely to do any type of nonpharmacologic activity to reduce their blood pressure levels (*Table 4.6*). In comparison with the results from the 1990 National Health Survey Interview,[10] the ITHP population of hypertensives is more likely than the US population of hypertensives to watch their weight but less likely to watch the salt in their diet or exercise to reduce their blood pressure levels (*Figure 4.2*).

Figure 4.2
Percent of Participants with Hypertension Who Use Non-Pharmacologic Activities to Control High Blood Pressure: The Inter-Tribal Heart Project and the National Health Interview Survey



Hypertension: Systolic blood pressure ≥140 mm Hg, diastolic blood pressure ≥90 mm Hg, or on antihypertensive medication.
NHIS: National Health Interview Survey, 1990, Ages 18+ (Ref. No. 10).

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Diabetes

Diabetes is a growing health care problem among tribes residing in the upper midwestern United States. Many studies have shown that diabetes confers an increased risk for heart disease, kidney failure, blindness, and amputations.[1-2] Heart disease is of particular importance to people with diabetes. After a heart attack, people with diabetes are two to three times less likely to survive than people without diabetes.[3] In a study of Pima Indians, all fatal heart attacks that occurred during the period of 1975 to 1984 were among those who had diabetes.[4] The prevalence of risk factors for heart disease is also higher among people with diabetes than people without diabetes.[3] Accordingly, efforts towards both the primary prevention of diabetes and the secondary prevention of heart disease (via identification of people with diabetes and the reduction of levels of coexisting risk factors) represent opportunities to reduce the risk of heart disease.

Impaired glucose tolerance (IGT) is a condition marked by blood glucose levels higher than normal but not high enough to be considered diabetes. A study among Pima Indians indicated that most people with IGT developed diabetes within 2-10 years.[5] Recent studies suggest that improvements in diet and levels of physical activity among people with IGT may prevent or delay the development of diabetes.[6] Hence, early recognition of persons with IGT may be an important component for primary prevention of diabetes and heart disease.

To determine the prevalence of diabetes and IGT among the ITHP participants, a 2-hour 75 gram oral glucose tolerance test was obtained from participants with fasting blood glucose levels of < 225 mg/dl and not taking medication for diabetes. The criteria defined by the World Health Organization were used to define diabetes and IGT.[7] Diabetes was defined as fasting blood glucose level of ≥140 mg/dl, a 2-hour blood glucose level of ≥200 mg/dl, taking medication for diabetes, or a history of diabetes. IGT was defined as a fasting blood glucose level of <140 mg/dl and a 2-hour blood glucose test of ≥140 mg/dl but < 200 mg/dl.

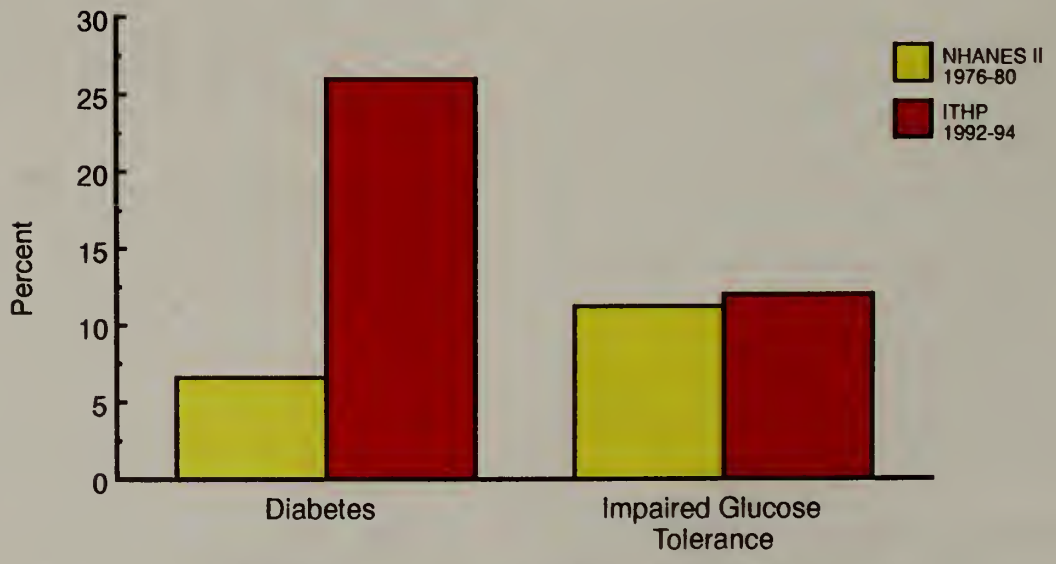
The prevalence of diabetes among the ITHP participants ages ≥25 years was 26% (*Table 5.1*). The prevalence was 9% in the 25-44-year-old age group and increased to 50% among participants who were ≥65 years old. The prevalence for women was slightly higher than for men (27% vs. 25%), and the gender difference was most pronounced in the 45-64-year-old age group (women: 40%; men: 32%). The prevalence of diabetes was higher among ITHP participants who had lower levels of educational attainment (see page 13 for discussion of educational patterns), were unemployed, or had family incomes of <$15,000.

The prevalence of IGT among ITHP participants from Menominee and White Earth was 12% (*Table 5.2*). (Data from Red Lake were not included in the prevalence estimates of IGT because 190 of 312 nondiabetic participants in this community declined the 2-hour oral glucose toloerance test.) As with diabetes, the prevalence of IGT was higher among women (13%) than men (9%). In contrast to diabetes, for which the prevalence increased with age, the prevalence of IGT was lowest in the 25-44-year-old age group (8%), increased in the 45-64-year-old age group (15%), and then de-

clined in the group that was ≥65 years old (12%). IGT was also higher among those who were unemployed, but there was no pattern by level of educational attainment or family income.

In summary, these data suggest that diabetes is a very common risk factor for heart disease among the ITHP participants—particularly among women and people with lower socioeconomic attainment. The overall diabetes prevalence of 26% is four times larger than the 6.6% reported for the U.S. population, ages 20-74, that participated in NHANES II (*Figure 5.1*).[8] Little variation was observed, however, for the prevalence of IGT between the ITHP participants (12%) and the NHANES II participants (11%)[8] (*Figure 5.1*). Large prevalences of diabetes have also been observed in the Strong Heart Study, which is a study of 13 American Indian tribes and communities in Arizona, Oklahoma, South Dakota, and North Dakota. Among people age 45-74 years, the prevalence of diabetes was 50% in the Strong Heart population[9] compared with 39% in the ITHP. These data underscore the importance of incorporating diabetes prevention activities into CVD prevention programs among the ITHP communities.

Figure 5.1
Percent of Participants with Diabetes and Impaired Glucose Tolerance in the Inter-Tribal Heart Project and the Second National Health and Examination Survey



Diabetes: Fasting glucose ≥ 140 mg/dl, 2 hr OGTT ≥ 200 mg/dl, or medication for diabetes.
Impaired glucose tolerance: Fasting glucose < 140 mg/dl and 2 hr OGTT ≥ 140 but < 200 mg/dl.
NHANES II: Second National Health and Nutrition Examination Survey, 1976-1980, Ages 20-74 (Ref. No. 8).

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Cholesterol

Cholesterol, a fat-like substance (lipid) that is present in cell membranes, is an important risk factor for heart disease. Many studies have documented that as the level of cholesterol in the blood increases, the rate of CHD increases.[1-6] When other risk factors are present (such as high blood pressure and cigarette smoking), the risk of developing CHD is even higher. On the basis of large population studies, a blood cholesterol concentration of <200 mg/dl in middle-aged adults seems to indicate relatively low risk of CHD. A level of ≥240 mg/dl approximately doubles the risk. Blood cholesterol values of 200-239 mg/dl indicate moderate and increasing risk of CHD.

Lowering total cholesterol levels can reduce the risk of CHD.[7,8] There are two approaches to lower cholesterol levels. One is a clinical approach that identifies persons with elevated cholesterol levels. Dietary therapy is the first line of treatment for these people, and drug therapy is reserved for people considered to be at high risk for CHD.[9] The second is a public health approach that aims to shift the distribution of cholesterol levels in the entire population to a lower range. The two approaches are complementary and together represent a coordinated strategy for reducing the risk of CVD.

Fasting blood samples were drawn on all ITHP participants. Cholesterol levels were determined by enzymatic methods by using a Hitachi chemistry analyzer and reagents from Boehringer Mannheim Diagnostics (Indianapolis, IN). The assays were performed at the Medical Research Laboratories (Cincinnati, OH). An elevated cholesterol level is defined as a total cholesterol level of ≥240 mg/dl.[9]

The prevalence of elevated cholesterol level among the ITHP participants ages ≥25 years was 22% (*Table 6.1*). The prevalence of elevated cholesterol level was slightly higher among men (24%) than among women (20%). For men, elevated cholesterol levels were more prevalent among the ITHP population than among the US population (ages 18-74 years) that participated in NHANES III (17%)[10] (*Figure 6.1*). The prevalence of elevated cholesterol was highest among people with the least amount of formal education (see page 13 for discussion of education patterns) and among people who were not employed. The pattern for household income was different for women and men. Among women, the prevalence of elevated cholesterol was higher among those with household incomes of <$15,000. Among men, however, the prevalence was lower among those with household incomes less than $15,000.

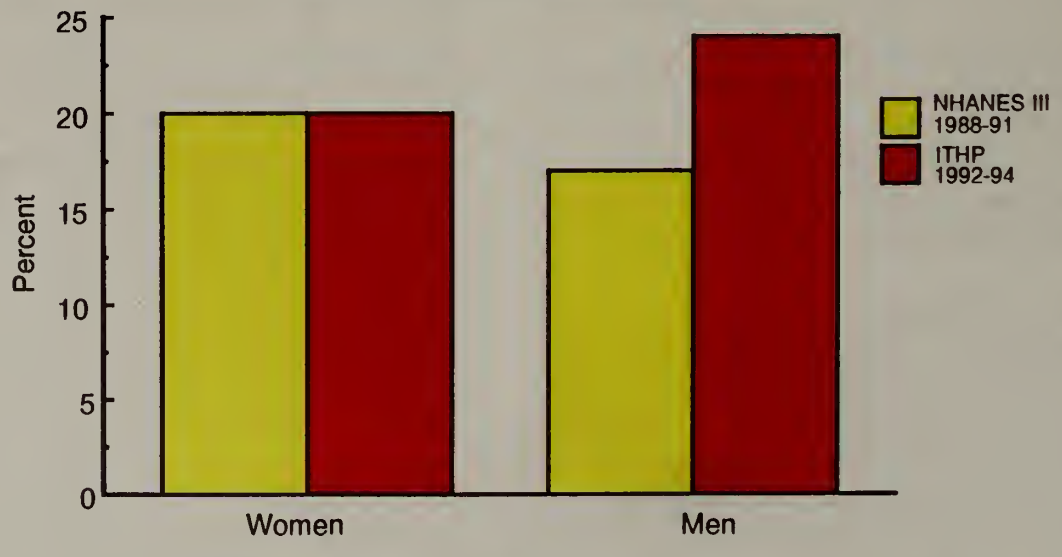
The National Cholesterol Education Program recommends that adults ages ≥20 years be screened for high blood cholesterol at least once every 5 years. Among the ITHP participants, 60% reported meeting this recommendation (*Table 6.2*). Women were only slightly more likely than men to have had their cholesterol checked during the previous 5 years (61% vs. 58%, respectively). These percentages among the ITHP participants were very similar to the percentages reported from a national survey of American Indians and Alaska Natives ages ≥18 years for 1991 to 1992 (the Behavioral Risk Factor Survey) (women: 62%; men: 59%).[11] Among whites, the percentages of people screened for high blood cholesterol within the previous 5 years were slightly higher

(women: 69%; men: 64%)[11] than those among ITHP participants.

Among the participants with elevated cholesterol levels, 48% reported they had not been informed that their cholesterol level was high (*Table 6.3*). Similar percentages were observed for women (47%) and men (48%). These percentages are lower than those observed for people ages 25-74 years in the state of Minnesota (women: 68%; men: 67%)[12] and lower than the US estimates for people ages ≥18 years (women: 52%; men: 56%).[13]

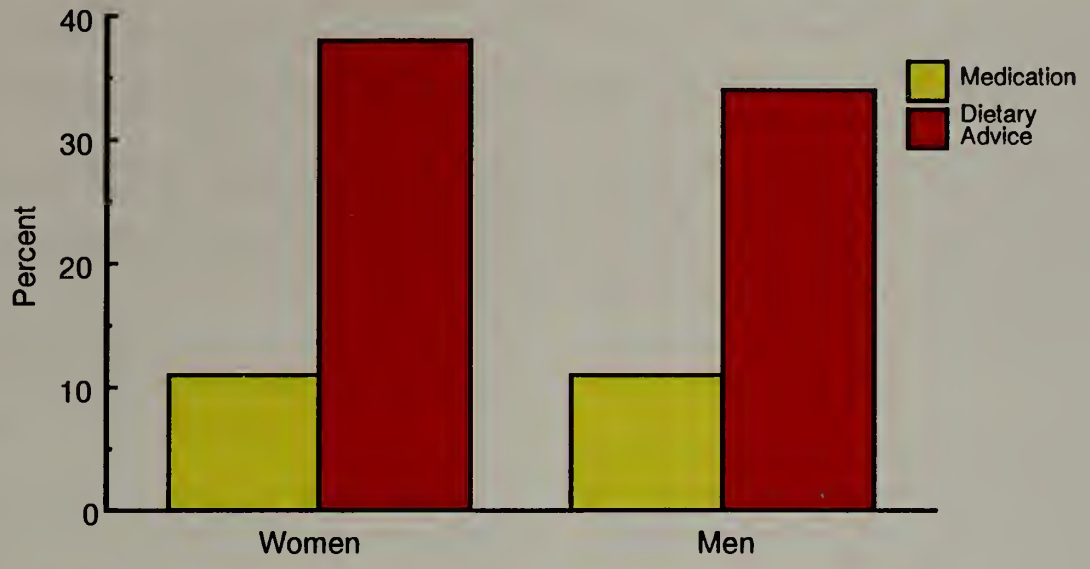
The percentage of participants with elevated cholesterol levels who had been given information to reduce fat or cholesterol in their diet (37%) is larger than the percentage that had been prescribed medication to lower their cholesterol level (11%) (*Tables 6.4, 6.5, Figure 6.2*). These findings are consistent with the guidelines from the National Cholesterol Education Program Adult Treatment Panel, which stress that dietary therapy should be tried before drug therapy.[9] Information regarding reduction of fat and cholesterol was most likely to be given to participants who were ages 45-64 years, had participated in any amount of college, had annual incomes of ≥$15,000, and were currently employed (*Table 6.4*). Medication was most likely to be prescribed for people who were ages ≥65 years, had attended any amount of college, had annual incomes of ≥$15,000, and were not currently employed (*Table 6.5*).

Figure 6.1
Percent of Participants with Elevated Cholesterol Levels in the Inter-Tribal Heart Project and the Third National Health and Nutrition Examination Survey



Elevated cholesterol: Total serum cholesterol ≥240 mg/dl.
NHANES III: Third National Health and Nutrition Examination Survey, 1988-1991, Ages 20+ (Ref. No. 10).

Figure 6.2
Percent of Participants with Elevated Cholesterol Levels Who Had Been Given Dietary Advice and/or Prescribed Cholesterol-Lowering Medication Inter-Tribal Heart Project, 1992-1994



Elevated cholesterol: Total serum cholesterol ≥240 mg/dl.

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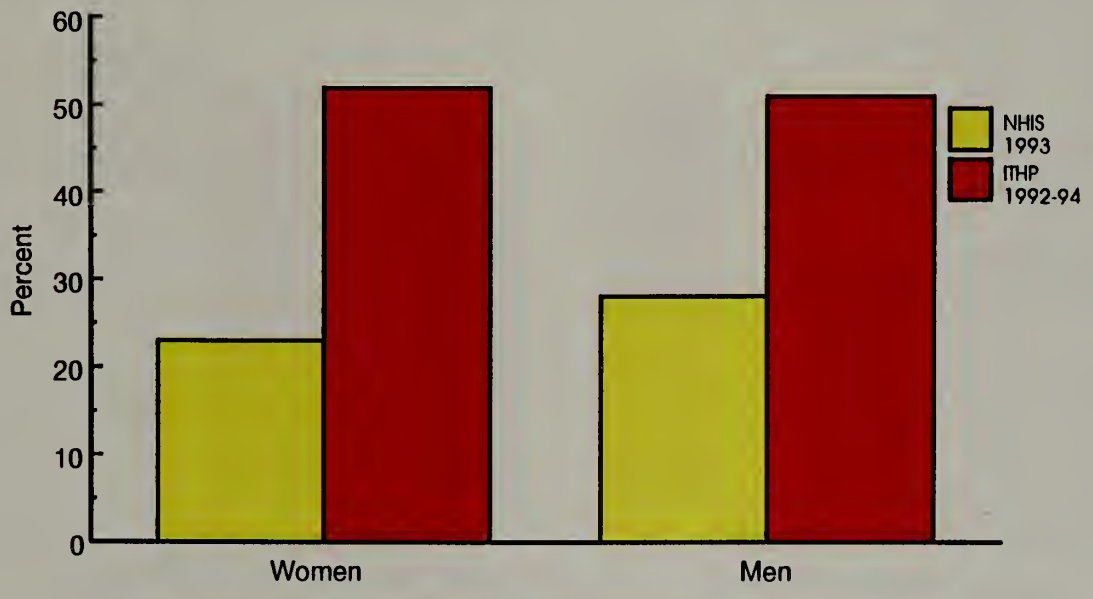
Tobacco Use

Several forms of tobacco use are related to an increased risk of CVD. For example, cigarette smoking is a risk factor for CHD, vascular disease, and stroke,[1,2] and smokeless tobacco (snuff and chewing tobacco) use may contribute to accelerated coronary artery disease and hypertension.[3] In addition, growing evidence suggests that exposure to environmental tobacco smoke (also called secondhand smoke or passive smoking) may increase the risk of heart disease among nonsmokers.[4-6]

ITHP participants ages ≥25 years were asked about their use of tobacco products and their attempts to stop smoking. Current cigarette smokers were defined as persons who had smoked at least 100 cigarettes during their lifetime and answered "yes" to the question, "Do you smoke now?" They were then asked the average number of cigarettes smoked per day and about their attempts to stop smoking. Furthermore, participants were asked whether they currently smoke a pipe, cigars, or chewed tobacco. Data on tobacco use among American Indians may reflect some ceremonial use (e.g., in pipes) rather than exclusive recreational use.

Fifty-seven percent of ITHP participants (61% of men and 55% of women) indicated they used at least one form of tobacco (*Table 7.1*). Six percent of men and 1% of women indicated that they currently smoked cigars or pipes. Chew-

Figure 7.1
Percent of Participants Who Currently Smoke Cigarettes in the Inter-Tribal Heart Project and the National Health Interview Survey



NHIS: National Health Interview Survey, 1993, Ages 25+ (Ref. No. 8).

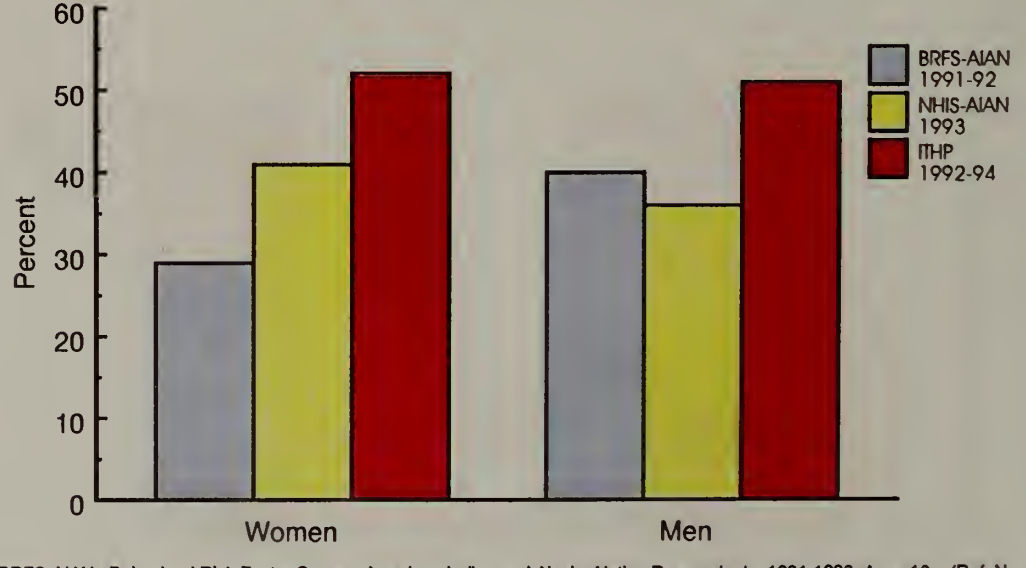
ing tobacco was used almost exclusively by men (women: <1%; men: 7%). Recent national estimates for American Indian and Alaska Native men ages ≥18 years were higher for cigar or pipe smoking (9.8%) and lower for chewing tobacco use (5.3%)[7] than for men who participated in the ITHP.

Tobacco smoking, primarily cigarette smoking, accounted for most of the tobacco use among the ITHP participants. Current cigarette smoking was reported by 52% of the participants (women: 52%; men: 51%) (*Table 7.1*). Cigarette smoking was most common among the participants ages 25-44 years for both sexes and decreased with age (*Table 7.2*). There was no consistent relationship between cigarette smoking and education or employment status, but smoking was generally less likely among those participants with a higher income (*Table 7.2*). Current cigarette smoking among the ITHP participants was markedly higher than that reported for the general U.S. population ages ≥18 years (25%)[8] (*Figure 7.1*), as well as the national estimates for American Indians and Alaska Natives ages ≥18 years (39%)[8] (*Figure 7.2*).

A measure for consumption (or intensity) of smoking is the number of cigarettes smoked per day. In general, women smoked fewer cigarettes per day than men (13 vs. 18) (*Table 7.3*). There appeared to be no relationship between cigarettes smoked per day and age, education, income, or employment status. National data on daily cigarette consumption for American Indians and Alaska Natives ages ≥18 years (women: 16 cigarettes per day; men: 19 cigarettes per day)[9] are comparable to the ITHP data. The white population in the US reported smoking more cigarettes per day (women: 18; men: 21)[9] (*Figure 7.3*).

A measure of the desire to quit smoking is the percent of current smokers who have attempted to quit smoking for ≥1 week in the past year.

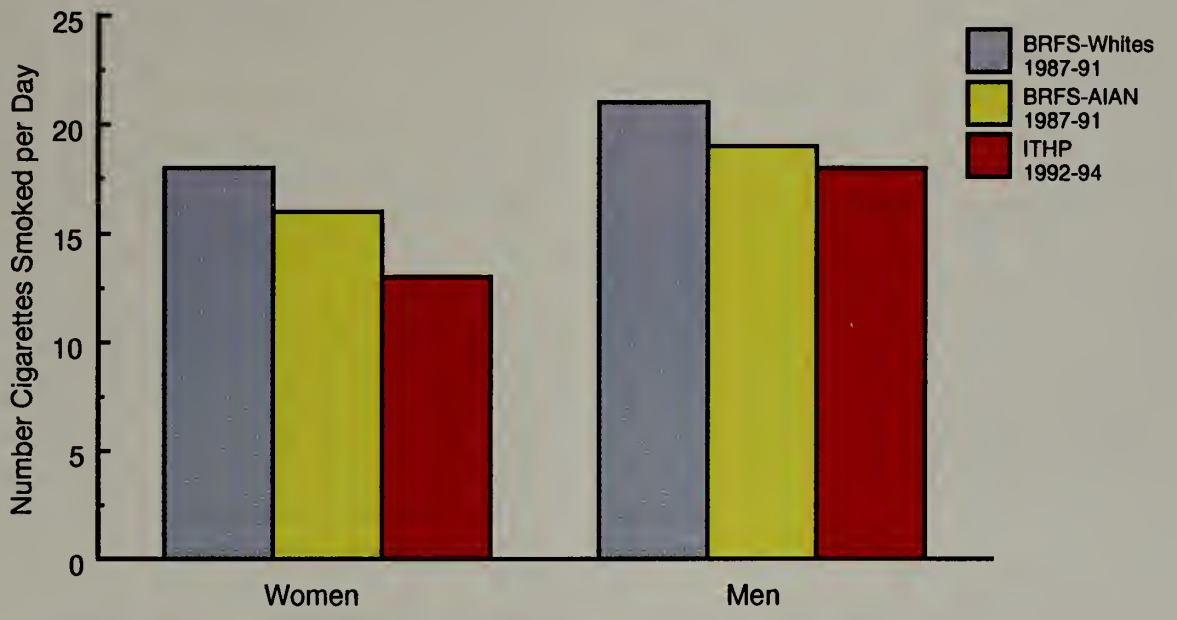
Figure 7.2
Percent of Participants Who Currently Smoke Cigarettes in the Inter-Tribal Heart Project and Other Surveys of American Indians and Alaska Natives



BRFS-AIAN: Behavioral Risk Factor Survey–American Indian and Alaska Native Respondents, 1991-1992, Ages 18+ (Ref. No. 10).
NHIS-AIAN: National Health Interview Survey–American Indian and Alaska Native Respondents, 1993, ages 18+ (Ref. No. 9).

Of persons still smoking, 35% of women and 38% of men tried to quit smoking for ≥1 week during the previous year (*Table 7.4*). For both women and men, the number of attempts to quit increased with age and income. However, there was no consistent relationship with education or employment status. Recent national data for American Indians and Alaska Natives ages ≥18 years indicate that 65% are interested in quitting smoking and that 35% are now former smokers.[8]

Figure 7.3
Average Number of Cigarettes Smoked per Day in the Inter-Tribal Heart Project and the Behavioral Risk Factor Survey



BRFS-Whites: Behavioral Risk Factor Survey–White Respondents, 1987-1992, Ages 18+ (Ref. No. 9).
BRFS-AIAN: Behavioral Risk Factor Survey–American Indian and Alaska Native Respondents, 1987-1992, Ages 18+ (Ref. No. 9).

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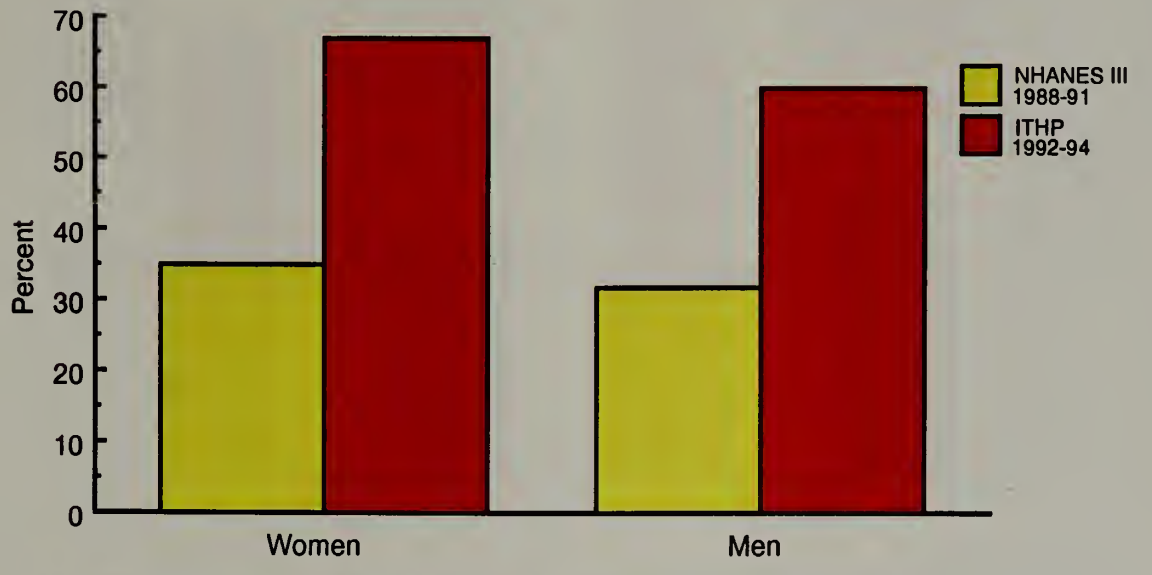
Weight

In most epidemiologic health surveys, body mass index (BMI) is used as an indirect indicator of overall body fat. In the general US population, high levels of BMI are associated with high blood pressure, high cholesterol levels, diabetes, and an increased risk for death.[1] Among the many communities of American Indians and Alaska Natives, there is substantial disparity in the levels of CVD.[2] The data on BMI and other CVD risk factors, which were collected as part of the ITHP, are useful for understanding the contribution of overweight and obesity to the risks of CVD among American Indians and Alaska Natives.[3-5]

BMI is calculated as the weight in kilograms divided by the square of height in meters to take into account the contributions of both weight and height to overall body fat.[6] In the ITHP survey, trained interviewers measured the participant's height (with shoes removed) to the nearest centimeter with a vertical mounted ruler. Each participant, wearing light clothing with shoes removed, was measured to the nearest kilogram of weight with a zero-calibrated Detecto scale.

The cutpoints for overweight and obesity that are presented in this report are the standard cutpoints currently used for most health surveys. These cutpoints are based on the distributions of BMI for the US population age 20-29 years, as estimated from the Second National Health and Nutrition Examination Survey (NHANES II) in 1976-1980.[7] These cutpoints assume that any increase in BMI after age 20-29 years is due to increased fat. Overweight (≥85th percentile) is defined as a BMI ≥27.3 kg/m^2 for women and ≥27.8 kg/m^2 for men. Obesity (≥95th percentile) is defined as a BMI ≥32.3 kg/m^2 for women and ≥31.1 kg/m^2 for men.

Figure 8.1
Percent of Participants Who Are Overweight in the Inter-Tribal Heart Project and the Third National Health and Nutrition Examination Survey



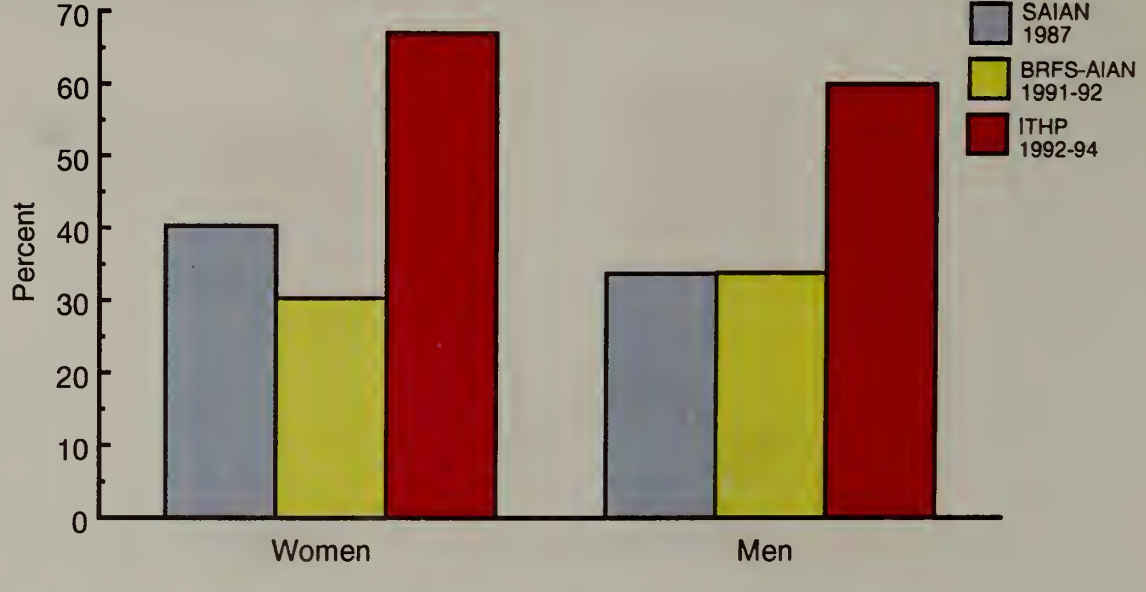
Overweight: BMI ≥ 27.3 for women; BMI ≥ 27.8 for men.
NHANES III: Third National Health and Nutrition Examination Survey, 1988-1991, Ages 20+ (Ref. No. 8).

Overweight

The prevalence of overweight among the ITHP participants ages ≥25 years, was 67% among women and 60% among men (*Table 8.1*). These prevalences are considerably higher than the prevalences reported from national surveys (*Figure 8.1*). Data from the national surveys are based upon a sample of the overall US population ages ≥20 years, who were examined in 1988-1991 as part of NHANES III[8], and Hispanic Americans ages ≥20 years, who were examined in the 1982-1984 Hispanic Health and Nutrition Examination Survey.[8] Relative to prevalences of overweight reported in other surveys of American Indians, the ITHP prevalences of overweight are high (*Figure 8.2*). These other study populations include the participants of the 1987 Survey of American Indians and Alaska Natives (SAIAN)[4] and American Indian and Alaska Native respondents in the 1991-1992 Behavioral Risk Factor Survey.[9] The prevalences of overweight in the two comparison studies may be underestimated because both surveys involved interviews with adults ages ≥18 years, who gave self-reports of their heights and weights rather than having physical measurements taken by an interviewer (as in the ITHP survey).

The prevalence of overweight differed between groups defined by age and education among both women and men (*Table 8.1*). As expected, prevalences of overweight were lower among younger adults (ages 25-44 years) than among the older age groups. High school and technical school graduates had the lowest prevalences of overweight. Among women, the prevalence of overweight did not differ with income level or current employment status. However, among men the prevalence of overweight was lower among those with a household income of <$15,000 per year and among women who were not currently employed.

Figure 8.2
Percent of Participants Who Are Overweight in the Inter-Tribal Heart Project and Other Surveys of American Indians and Alaska Natives

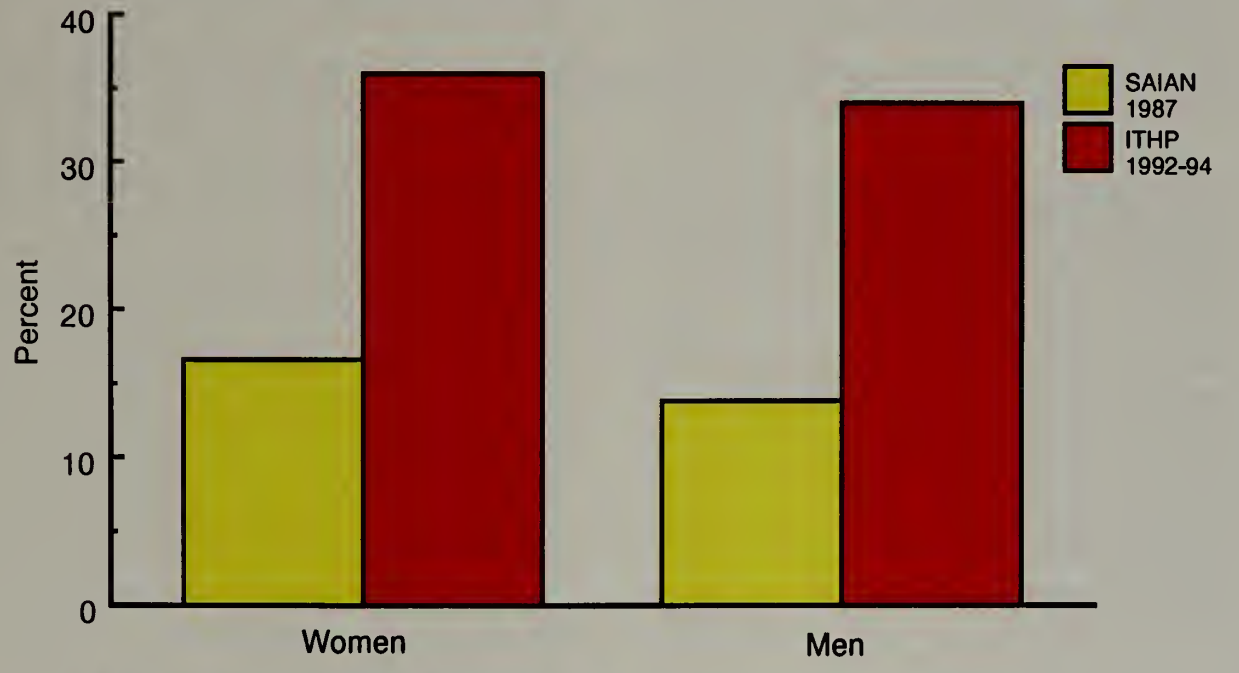


Overweight: BMI ≥ 27.3 for women; BMI ≥ 27.8 for men.
SAIAN: Survey of American Indians and Alaska Natives, 1987, ages 18+ (Ref. No. 4).
BRFS-AIAN: Behavioral Risk Factor Survey –American Indian and Alaska Native Respondents, 1991-1992, Ages 18+ (Ref. No. 9).

Obesity

Thirty-six percent of women and 34% of men were defined as obese (*Figure 8.3*). These prevalences were considerably higher than those for the 1976-1980 US population in NHANES II[8] and the 1987 SAIAN population[4] (*Figure 8.3*). The prevalence of obesity among the ITHP participants was highest among those ages 45-64 years (*Table 8.2*). As with comparisons of the prevalence of overweight between education groups, high school and technical school graduates had the lowest prevalences of obesity. Among men, the highest prevalences of obesity were observed among men with household incomes of ≥$15,000 and among currently employed men. In contrast, among women the prevalence of obesity was higher among those with household incomes of <$15,000; there were no differences for employment status.

Figure 8.3
Percent of Participants Who Are Obese in the Inter-Tribal Heart Project and a National Survey of American Indians



Obesity: BMI ≥ 32.3 for women; BMI ≥ 31.1 for men.
SAIAN: Survey of American Indians and Alaska Natives, 1987, ages 18+ (Ref. No. 4).

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Physical Activity

People who are physically active typically possess more positive physical and psychological health than people who are not physically active. Regular physical activity can lead to reductions in heart rate, blood pressure, and percent body fat and to a decreased LDL:HDL ratio.[1,2] These adaptations modify, in a favorable manner, other known risk factors for CHD, such as high blood pressure (hypertension), high cholesterol (hyperlipidemia), and obesity. Persons who are inactive tend to die at a younger age from deaths due to all causes and CHD than do people who are physically active.[3,4] In addition, regular physical activity may assist in the prevention or treatment of non-insulin-dependent diabetes by serving as an adjunct to efforts to reduce caloric intake and by assisting with weight loss.[5] Regular physical activity can also result in greater bone strength,[6,7] which can reduce the risk of bone fractures due to osteoporosis, a health problem that is especially common among older women. Evidence is also emerging indicating that persons who are physically active may have lower rates than inactive persons of some forms of cancer (e.g., colon and breast cancer).[8,9] Furthermore, leading a physically active lifestyle results in mental health benefits; persons who are more physically active tend to be less anxious and depressed than persons who obtain little or no physical activity.[10,11]

The ITHP participants were asked to report on the following aspects of their physical activity behavior: 1) the frequency and duration of the two leisure-time physical activities they did most frequently during the previous 12 months, 2) the average amount of time they spent walking on a typical work day, 3) whether they took part in an exercise or physical activity program during the past 1 year, and 4) whether they exercised regularly to control their weight.

Leisure-time activity was broadly defined to include exercise and sports. Exercise options included aerobic exercise, walking, jogging or running, bicycling, cross-country skiing, snowshoeing, Indian dancing, fishing, hunting, collecting maple sap, growing rice, gardening, and chopping wood. Sport options included basketball, softball, football, and volleyball. The ITHP participants were categorized as regularly active (physically active 3 or more times per week *and* for ≥20 minutes per occasion), or inactive (engaged in no leisure-time physical activity during the previous 12 months).

On average, 36% of the ITHP participants ages ≥25 years were regularly active (*Table 9.1*). This prevalence is slightly lower than the average for the US population ages ≥18 years (42%) who participated in the Behavioral Risk Factor Surveillance System Survey (BRFSS) in 1992.[12] Comparison of ITHP and BRFSS findings for various racial/ethnic groups reveals that the ITHP population is less regularly physically active than whites (44%) and is as active as the other racial/ethnic groups (37%).[12]

Among the ITHP participants, more men than women engaged in regular physical activity (40% vs. 34%) (*Table 9.1*). Among the total BRFSS participants, men and women were similarly active (42% for both).[12] However, among the American Indian and Alaska Native participants in the BRFSS, men were more active than women (49% and 36% respectively)[13] (*Figure 9.1*). Thus, women in the

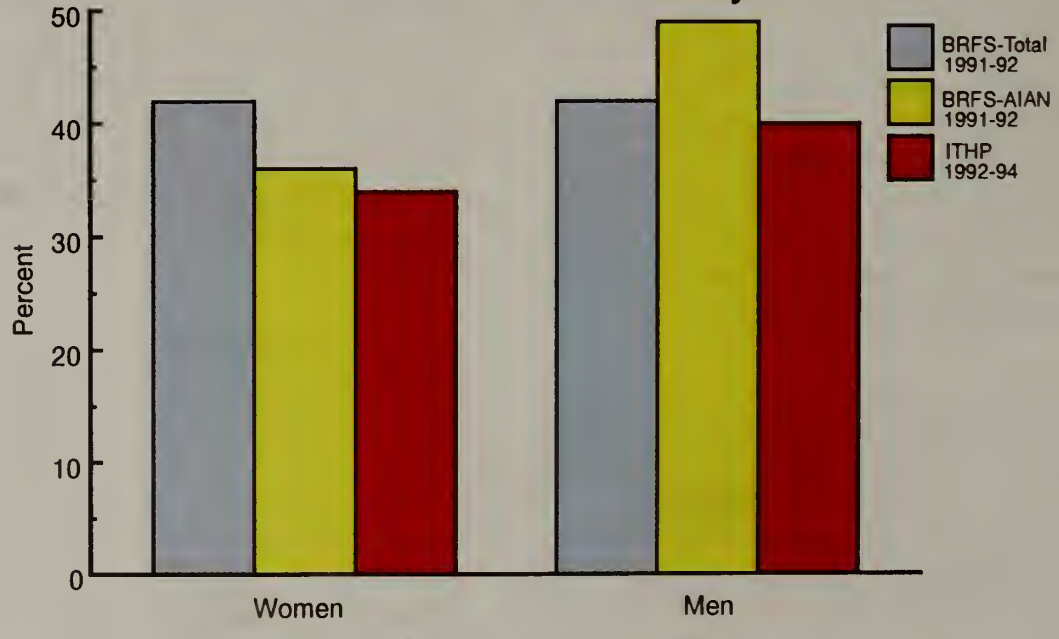
ITHP population are less active than all women in the BRFSS but similarly active to other American Indian and Alaska Native women. Men in the ITHP population were about as physically active as all men in the BRFSS but less active than other American Indian and Alaska Native men.

The prevalence of regular physical activity decreased with age, and differences among the oldest and the two youngest age groups were especially pronounced. Thirty-nine percent of persons ages 25-44 years were physically active compared with 37% of persons ages 45-64 years and 26% among persons ages ≥65 years (*Table 9.1*).

Regular physical activity did not differ substantially by level of education or income among the ITHP participants (*Table 9.1*). Other studies have observed that people who earn higher incomes are more physically active in their leisure time than those who earn lower incomes. In the BRFSS population, the prevalence of regular physical activity was 36% for persons earning <15,000 and 45% for those earning ≥$15,000.[12] The prevalence of regular physical activity was somewhat higher among ITHP participants who were employed (38%) than among those who were not employed (34%). (*Table 9.1*).

The prevalence of people who are inactive (i.e., the percentage of ITHP participants who reported that they engaged in no leisure-time physical activity during the previous 12 months) was 28% (*Table 9.1*). The prevalence was higher among women (32%) than men (20%) and increased with advancing age. Whereas the prevalence of regular physical activity did not vary much across education groups, the prevalence of inactivity was higher among people with <12 years of education (33%) or some technical school training (31%) than among those persons who graduated from high school (23%) or who have some college

Figure 9.1
Percent of Participants Who Engage in Regular Leisure-Time Physical Activity in the Inter-Tribal Heart Project and the Behavioral Risk Factor Survey



Regular leisure-time physical activity: At least 3 times per week for ≥20 minutes per occasion.
BRFS-Total: Behavioral Risk Factor Survey–All Respondents, 1991-1992, Ages 18+ (Ref. No. 13).
BRFS-AIAN: Behavioral Risk Factor Survey–American Indian and Alaska Native Respondents, 1991-1992, Ages 18+ (Ref. No. 13).

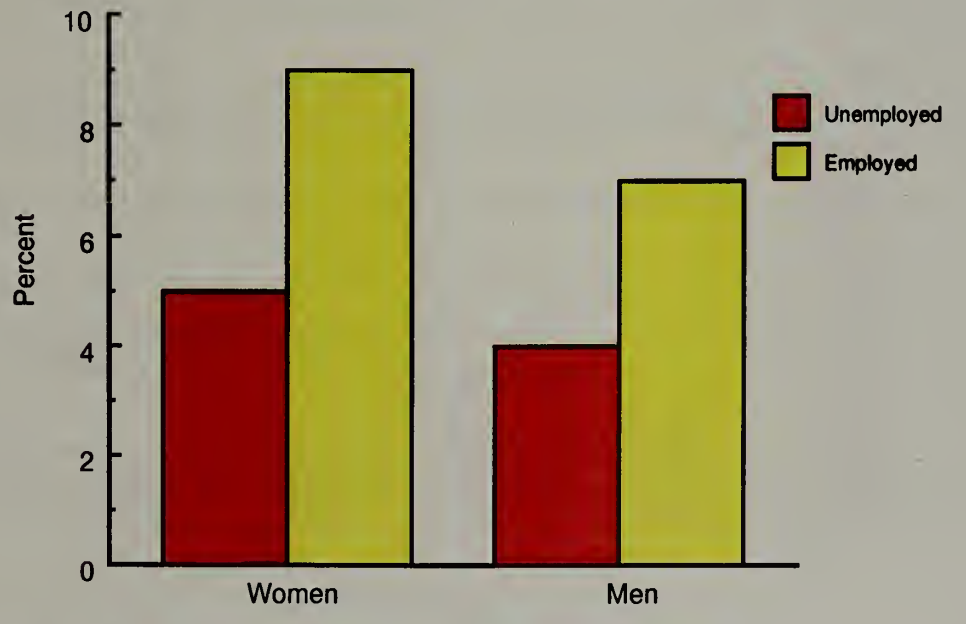
education (24%). In addition, the prevalence of leisure-time physical inactivity was higher among people earning <15,000 (35%) than among persons earning ≥$15,000 (21%), and it was higher among people who were unemployed (34%) than people who were employed (24%) (*Figure 9.2*). In comparison, the national health objective from Healthy People 2000 (Objective 1.5) is to reduce the prevalence of persons obtaining no leisure-time physical activity to 15%.[14]

The above findings pertain to leisure-time physical activity only. ITHP participants who were employed were also asked to report the amount of time that they spent walking on a typical workday. On average, women and men walked 4.2 hours each workday (*Table 9.2*). The amount of time spent walking during the workday was greater among people with fewer years of education and smaller annual incomes. Interestingly, regardless of the number of hours they worked each workday, all participants reported that they spent 4 hours walking. For the part-time worker, however, this may mean that on-the-job-activity is obtained 1-3 days per week, whereas the full-time worker may walk ≥5 days per week.

The ITHP participants were also asked to indicate whether they had taken part in an exercise or physical activity program during the past year. Eight percent of women and 7% of men said that they had been involved in a physical activity program (*Table 9.3*). The lowest prevalence of involvement in a physical activity program occurred among those in the oldest age group (4%), the lowest income group (4%), the least educated (3%), and the unemployed (5%) (*Table 9.3*).

The reasons people are active or inactive are varied, but one reason many people are physically active is to lose or maintain their body weight. Overweight and obesity are associated with several health problems, including CVD and non-insulin-dependent diabetes mellitus. Slightly more than one-third of the ITHP population (36%) reported that they exercise regularly to control their weight (*Table 9.4*). The

Figure 9.2
Percent of Participants Who Took Part in an Exercise or Physical Activity Program During the Past Year, by Employment Status
Inter-Tribal Heart Project, 1992-1994



number of participants who exercise to control their weight did not differ substantially between men and women, between age groups, or income groups (range was 35% to 39% for gender, age, and income groups). Participants with technical school training were more likely to report that they exercised to control their weight (41%) than persons who were high school graduates (33%), who had <12 years of education (36%), or who had some college education (37%). In addition, participants who were employed (38%) were more likely to exercise to control their weight than persons who were not employed (33%).

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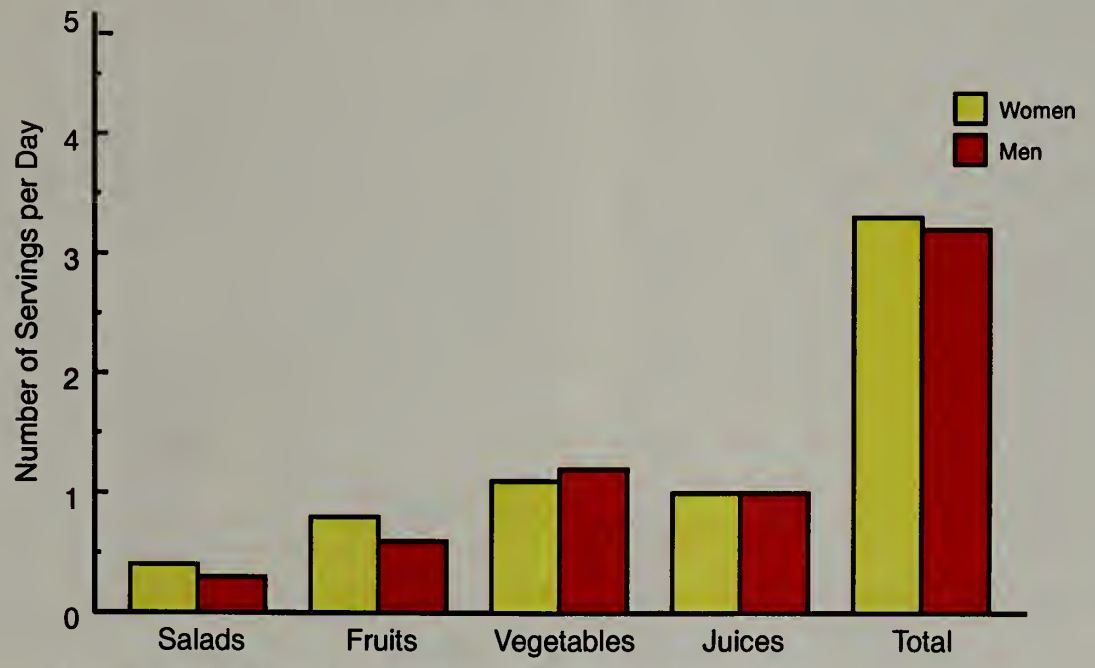
Food Habits

Diet not only influences the development of obesity but also affects the risk for developing several leading causes of death, including CHD, stroke, diabetes, atherosclerosis, and several types of cancer.[1,2] A diet high in fiber, high in antioxidants, and low in fat may play an important protective role in preventing the development of atherosclerosis, CHD, and some cancers,[1-4] whereas reduced sodium or salt intake may help control blood pressure levels among some hypertensive people. Among people with diabetes, a high-carbohydrate diet may improve glucose tolerance and insulin sensitivity, while the reduced fat intake that accompanies a high-carbohydrate diet lowers cardiovascular risk.[1,5] Important sources of dietary fiber and carbohydrates are fruits, vegetables, and whole grain cereals. Fresh fruits and vegetables are also important sources of antioxidants.

This section examines the prevalences of selected food habits reported by the ITHP participants. These prevalences include the proportion of ITHP participants whose reported food habits meet the recommended levels for daily consumption of fruits, vegetables, and grain products and the proportion who appear to meet the recommended patterns for the addition of salt and fats to foods. This section concludes with a report of the proportion of the ITHP participants who would like more nutritional information about the foods eaten in restaurants.

Traditional survey methods for collecting information about diet or food habits include the 24-hour dietary recall (a list of the servings of all foods, vitamin supplements, and beverages consumed by the participant on the previous day), the food frequency questionnaire (an

Figure 10.1
Average Number of Servings per Day of Salads, Fruits, Vegetables, and Juices
Inter-Tribal Heart Project, 1992-1994



Recommended consumption: 5 or more servings of fruits and vegetables per day.

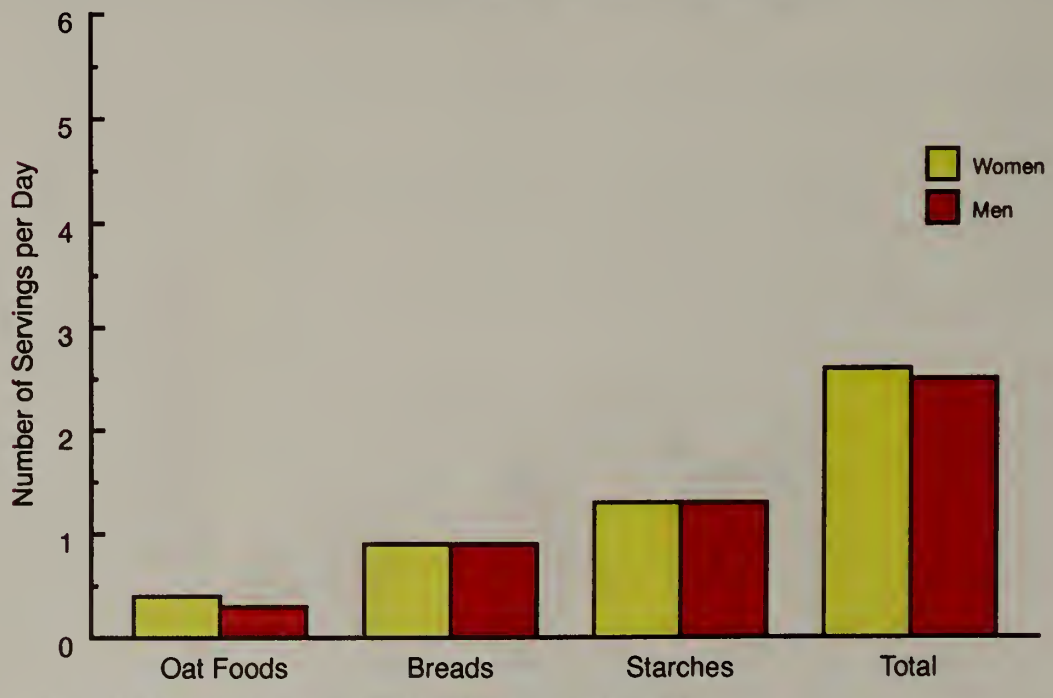
often lengthy, standardized food-item list on which the respondent estimates the "usual" serving size and number of times during a day, week, or month that individual food items are "usually" eaten), or a weekly food record that the respondent must remember to maintain. These methods are time-consuming for both interviewer and respondent and have different methodologic problems that affect the accuracy of the data collected. Limitations of time, space, and staff in the ITHP survey required the use of a shorter and more simple measurement of food habits that provides relevant information for planning health promotion efforts in the tribal communities. In order to validate the information collected regarding food habits, a representative subset of the participants also completed an interviewer-administered food frequency questionnaire.

Fruits and Vegetables

To increase complex carbohydrates and fiber in the adult diet, it is recommended that adults consume 5 or more daily servings from the vegetable and fruit group and 6 or more daily servings of grain products (breads, cereals, pasta, and starchy vegetables).[6,7] Participants in the ITHP survey answered 4 questions regarding how many servings per day they consumed of salads (a bowl of either green or vegetable salad), vegetables (1/2 cup raw or cooked, excluding salads or potatoes), fruit or vegetable juices (1/2 cup fresh, canned, bottled, or frozen reconstituted), and fruits (raw, canned, cooked, or dried portions).

The average number of daily servings reported for each of the 4 fruit and vegetable food items suggest that the ITHP participants ages ≥25 years eat one vegetable, one juice, and either a salad or one fruit on a daily basis (*Figure 10.1*). The average total number of daily servings in the fruit and vegetable food group was 3 per day for both men and women in the ITHP survey. These averages did not differ very much between seasons of the year, but the total average number of fruits and vegetables was

Figure 10.2
Average Number of Servings per Day of Oat Foods, Breads, and Starches
Inter-Tribal Heart Project, 1992-1994



Recommended consumption: 6 or more servings of grain products per day.

slightly higher among ITHP participants who were interviewed in May, August, September, and December than in the other months of the year.

Only 18% of women and 13% of men met the recommendation for the daily consumption of 5 or more fruits and vegetables (*Table 10.1*). The prevalence of adults who met the recommendation was higher among older than younger women, whereas younger men were more likely to meet the recommendation than older men. There was no consistent pattern of differences between groups defined by education; however, lower income and unemployed women had a higher prevalence of meeting the recommendation than higher income and employed women. Among men, there were little differences in meeting the recommendations between groups defined by income or employment.

Grains and Starches

Participants in the ITHP survey answered 3 questions regarding how many servings per day they consumed oatmeal or oat foods, breads, and starchy foods (rice, noodles, macaroni, potatoes, and cereals). The average number of daily servings reported for each of the 3 grain and starch food items suggests that approximately one bread and one other starchy food are consumed daily (*Figure 10.2*) by the ITHP participants. Although a good inexpensive source of fiber, the average daily servings of oatmeal and oat foods was low in this study population. The average total number of daily servings in the grain product food group was 2.5 per day for both men and women in the ITHP survey. These averages were constant throughout the year. Therefore, it is not surprising that few women (1%) and men (2%) in the ITHP study population met the recommendation of 6 or more grains products per day (*Table 10.2*).

Use of Salt

The *Dietary Guidelines for Americans* recommend using salt sparingly, if at all, in cooking and at the table.[8] This behavior was defined in the ITHP survey as not adding salt to food at the table and was reported by 24% of women and 22% of men (*Table 10.3*). The percentage of ITHP participants who met this recommendation increased with advancing age. Women with <12 years of education or some college education were more likely than high school and technical school graduates to avoid using salt at the table. This pattern with educational level was not as consistent in men. Men with household incomes of <$15,000 were less likely to meet the salt use recommendation than men with higher incomes. Employed women were also less likely to meet the salt recommendation than unemployed women.

Use of Fats and Oils

To decrease fat, saturated fat, and cholesterol in the diet, the *Dietary Guidelines for Americans* recommend using fats and oils sparingly in cooking or to choose liquid vegetable fats most often because they are lower in saturated fat.[8] This behavior was defined in the ITHP survey by the responses "does not add fat to cooked vegetables" or "most usually adds liquid cooking oils (vegetable oils) to cooked vegetables" in contrast to the responses of "margarine (stick or solid)"; "vegetable shortening (solid)"; or "lard, meat drippings, or butter (animal fats)." Overall, 47% of women and 42% of men met this fat recommendation (*Table 10.4*). The prevalence of meeting this recommendation was higher among younger rather than older persons, increased with levels of education and income, and was higher among those who were currently employed rather than unemployed.

Nutritional Information

To determine the level of interest in nutrition information among the ITHP participants and to help plan future health promotion efforts, respondents were asked whether in the future they would like more information about the nutritional value of the foods they ate in restaurants. Over 63% of women and 53% of men responded "yes" (*Table 10.5*). The percentage of people who were interested was greater among younger than older respondents, increased with levels of education and income, and was higher among those who were currently employed rather than unemployed.

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Psychosocial Characteristics

Psychosocial characteristics refer to a variety of ways that people respond to and interact with each other and with their social environments. Many psychosocial factors, such as coping mechanisms, depression, hopelessness, degrees of anger and hostility, religiosity, level of stress, social support, and socioeconomic conditions have been linked to risk of CVD.[1-5] The interaction of psychosocial factors with physiological and behavioral factors is an important element in the etiology of CVD. Several studies have documented the importance of psychosocial conditions to the health of American Indian communities.[6,7]

This section presents data on four psychosocial characteristics: self-perceived stress, hopelessness, spirituality, and self-perceived life opportunities. Self-perceived stress was assessed by asking "During the past 2 weeks, would you say that you experienced a lot of stress, a moderate amount of stress, relatively little stress or almost no stress at all?"[8] Degree of hopelessness was measured using the following question from the General Well Being Schedule[2,9] "In the past month, have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?" The answers were grouped into three categories of hopelessness: severe, moderate, or none/low. Regarding spirituality, participants answered yes or no to the question "Is religion or spirituality important in your life?" To measure self-perceived life opportunities,

Figure 11.1
Percent of Participants Who Felt Either Moderate or Severe Hopelessness in the Inter-Tribal Heart Project and the First National Health and Nutrition Examination Survey

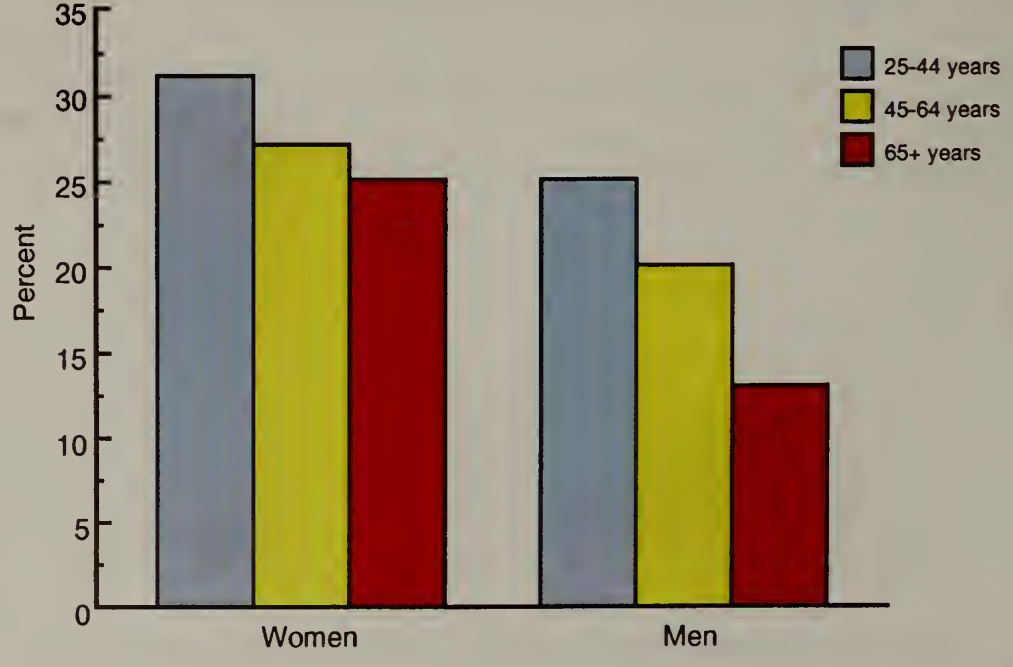
NHANES I: First National Health and Nutrition Examination Survey, 1971-1975, Ages 45-77 (Ref. No. 2).

participants were asked "In general, do you think you have had a fair opportunity to achieve your goals, or have you been held back in life?" Almost one-half of the ITHP participants (48%) reported experiencing at least a moderate amount of stress during the 2 weeks before the survey (*Table 11.1*). Women were more likely than men to report having experienced stress (52% vs. 43%). These percentages were somewhat lower than the 1990 national averages for the US population ages ≥18 years (57% for the total population; women: 60%, men: 54%).[8] Among the ITHP participants, perceived levels of stress were highest for the age group 25-44 years, for people with the most years of formal education, for people with ≥$15,000 annual income, and for people who were employed. Similar patterns were observed for the US population.[8]

Among the ITHP participants, the prevalence of severe hopelessness was 5% and the prevalence of moderate hopelessness was 26% (*Table 11.4*). These percentages are higher than the averages for the US population ages 45-77 years (2.9% for severe hopelessness and 10.8% for moderate hopelessness)[2] (*Figure 11.1*). Women were more likely to report hopelessness (severe: 7%; moderate: 29%) than men (severe: 3%; moderate: 20%) (*Tables 11.2, 11.3*). There was very little variation in severe and moderate hopelessness across the education, income, and employment groups. The youngest age group (25-44 years) and the lowest income category (<$15,000) had the highest prevalences of moderate hopelessness.

The majority of ITHP participants (76%) felt that religion or spirituality was important in their lives (*Table 11.5*). Women were more likely (80%) than men (69%) to report that spirituality was important in their lives. Although the importance of religion or spirituality was prevalent among all sociodemographic

Figure 11.2
Percent of Participants Who Believe That They Have Not Had a Fair Opportunity to Achieve Their Goals In Life, by Age Group
Inter-Tribal Heart Project, 1992-1994



groups, the importance of spirituality was more prevalent among people in the two oldest age groups, people with the highest level of formal education, and people with the largest annual incomes. The same patterns were observed for women and men.

Twenty-six percent of the ITHP participants felt that they had not had a fair opportunity to achieve their goals in life (*Table 11.6*). Twenty-nine percent of women and 21% of men reported that they had not had a fair opportunity. The prevalence of self-perceived unfair opportunities was higher among women than men and was highest among people in the youngest age group, people with fewer years of formal education, people with annual incomes <$15,000, and people who were not employed (*Figure 11.2*).

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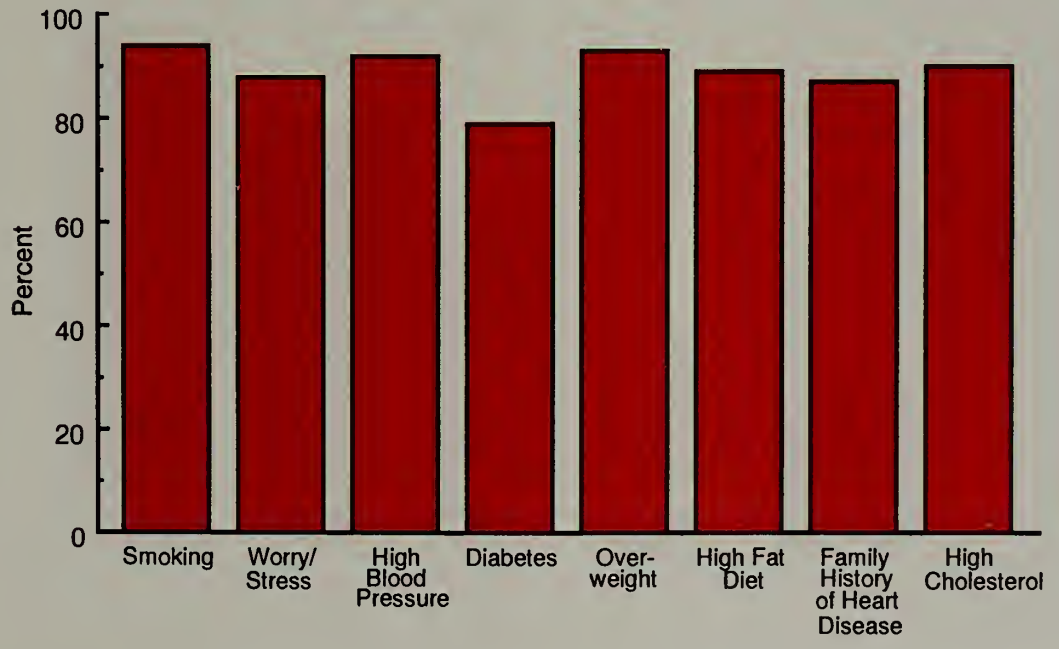
Knowledge of CVD Risk Factors, Program Awareness, and Participation

Development of CVD is associated with several risk factors, including high blood pressure, high blood cholesterol, stress, overweight, high-fat diets, diabetes, and family history of heart disease. One key to preventing CVD lies in controlling these risk factors at both the individual and population levels. At the individual level, health promotion programs aimed at changing knowledge, attitudes, and behaviors of individuals are important. At the population level, community-based approaches to change practices, policies, and the environment are necessary. The ITHP survey included questions on participants' knowledge of CVD risk factors plus their awareness of and participation in CVD risk reduction programs in their communities. Data from these questions are useful to tribal leaders and health planners in designing and implementing programs and in monitoring results within communities.

Table 12.1 shows the numbers and percentages of ITHP participants ages ≥25 years, who answered that they thought a person's chance of getting heart disease was either definitely or probably increased by a particular CVD risk factor. The vast majority of ITHP participants were aware of the conditions that increase the risk of developing heart disease (*Figure 12.1*).

Figure 12.1
Percent of Participants Who Recognize Selected Conditions as Risk Factors for Heart Disease
Inter-Tribal Heart Project, 1992-1994

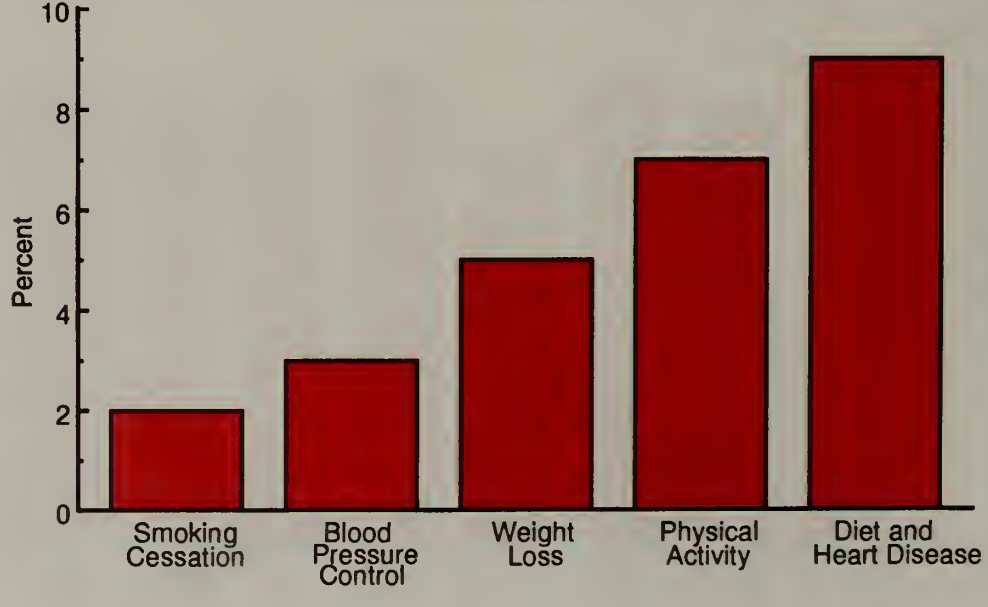


Women were more likely than men to indicate that CVD was influenced by the various risk factors. Of all the CVD risk factors listed, women and men were least likely to associate diabetes as a risk factor for CVD (*Table 12.1*). Because of the high prevalence of diabetes among the ITHP participants, (26%, *Table 5.1*), there seems to be sufficient discrepancy between knowledge and risk status to merit increased health promotion efforts focusing on diabetes and heart disease. These efforts could include provider counseling at health clinics and community efforts, such as focused education campaigns at schools and worksites that seek to develop positive health behaviors before CVD risk factors become established.

Less than one-third (29%) of the participants who reported that they were aware of any CVD risk reduction programs in their communities (*Table 12.2*). Women were more aware of them than men. For both women and men, the awareness of programs was higher among people with higher levels of education and household income.

Participation during the past year in any program to reduce the risk of heart disease was low, ranging from 2% to 11% (*Table 12.3, Figure 12.2*). Women were generally more likely to participate than men, especially in diet, weight loss, and physical activity programs. These data do not include changes or efforts made by individuals on their own to reduce the risks of heart disease (e.g., exercising or dieting in response to a health professional's counseling) and therefore may be an underestimate of the amount of effort being expended in a community to address the problem of CVD.

Figure 12.2
Percent of Participants Who Participated in Programs To Reduce the Risk of Heart Disease During the Previous Year
Inter-Tribal Heart Project, 1992-1994



The pattern seen among women's responses to the ITHP survey questions on knowledge of CVD risk factors, awareness of, and participation in CVD risk reduction programs is consistent with their generally greater knowledge about health issues and generally greater use of health care services than men.[1] The low level of participation in organized programs, observed for both women and men, raises important questions regarding the availability and accessability of such programs. The data suggest a need to further assess the number and type of programs that currently exist, what programs are of interest to community members, and what types of policy changes could enhance participation in activities and programs that are offered to reduce the risks of heart diseases.

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Conclusions

The "*Inter-Tribal Heart Project: Results from the Cardiovascular Survey*" report provides a comprehensive picture of the cardiovascular health profile for the three communities that participated in the Inter-Tribal Heart Project (ITHP). The three communities (Menominee, Wisconsin; Red Lake, Minnesota; and White Earth Minnesota) are located in an area for which the mortality rates from heart diseases and stroke have consistently been higher than for most other Indian Health Service Areas in the country. Prior to this report, no data were available to determine the prevalence of cardiovascular risk factors in the area. The data collected as part of the ITHP and presented in this report are valuable both for understanding the conditions that give rise to the high mortality rates from cardiovascular disease (CVD) and for developing effective policies and programs to reduce the risks of CVD. Optimal use of these data will result from interpreting the data within the context of the historical and social conditions of the communities as described at the beginning of this report.

The data in this report indicate high prevalences of the major biological risk factors for CVD, including diabetes, hypertension, elevated total cholesterol, and overweight. The prevalence of diabetes in the ITHP for persons aged 25 and older (26%) was dramatically higher than the average for the US population aged 20-74 years (6.6%).[1] The prevalence of hypertension (31%) was somewhat higher than the average reported for the US population aged 18-74 years (24%).[2] Although 60% of the ITHP participants with hypertension reported taking medication to lower their blood pressure, only 28% had their blood pressure under control. Elevated cholesterol level was also more prevalent among the participants of the ITHP (22%) than in the overall US population aged ≥20 years (18%).[3] The prevalence of overweight among women (67%) and men (60%) was considerably higher than the prevalences reported from national surveys of the US population[4] as well as from national surveys of American Indians and Alaska Natives.[5,6] Very high prevalences of obesity were also recorded among the ITHP participants (women: 36%; men: 34%).

The prevalences of behavioral risk factors such as tobacco use, diet, and physical inactivity also suggest high risk profiles for CVD among the ITHP communities. Both women and men showed a high prevalence of cigarette smoking (52% and 51%, respectively), and cigarette smoking is most prevalent in the youngest age group of participants (aged 25-44 years). Dietary consumption of heart healthy foods, such as fruits, vegetables, grains, and starches, was low for both women and men. Whereas the current guidelines recommend eating 5 or more servings of fruits and vegetables per day and 6 or more servings of grains or starches[7,8], the averages among the ITHP participants were 3 and 2.5 per day, respectively. The prevalences of physical inactivity for women (32%) and men (20%) were both substantially higher than the national goal of 15%, which has been recommended in the *Healthy People 2000* objectives.[7]

The psychosocial profile of the participants included the degree of stress participants were

experiencing, the amount of hopelessness they felt in their lives, the importance of spirituality in their lives, and their perceptions of having had a fair opportunity to achieve their goals in life. Nearly half of the participants (48%) reported experiencing at least a moderate amount of stress during the 2 weeks prior to the survey. The prevalences of moderate and severe hopelessness were 26% and 5%, respectively. The majority of participants (76%) felt that religion or spirituality was important in their lives. Twenty-nine percent of women and 21% of men reported that they had not had a fair opportunity to achieve their goals.

Finally, the data on knowledge of CVD risk factors, program awareness, and participation in programs to reduce the risks for CVD indicate that the vast majority of participants in the ITHP were able to identify the major risk factors for heart disease. Twenty-nine percent of the participants reported that they were aware of programs in their community to reduce the risks of CVD, and participation in such programs ranged from 2% to 11%, depending on the type of program. These data may reflect both the absence of programs to reduce the risks of CVD and the possible preference among participants to address behavior change through means other than the existing, organized community programs.

Overall, the data in this report indicate a high risk profile for CVD among the communities in the Inter-Tribal Heart Project. The need for broad-based approaches to improve the heart health of residents in these communities is clear. The second phase of the Inter-Tribal Heart Project addresses this need and is already in progress. Community leaders use the data from this report, plus other information about a community, to develop programs and policies geared towards reducing the risks of heart disease. A wide spectrum of activities and programs is underway addressing the cardiovascular health needs of people of all ages (children, youth, adults, and elders) and take place in multiple settings (e.g., schools, work sites, health clinics, the community-at-large). Various health promotion strategies are being employed, including education, organizational change, policy and legislative change, and environmental change. Each community has been designing and implementing prevention activities in response to the needs and interests of their community members. All ITHP communities have shown increased efforts to reduce the high prevalences of CVD risk factors among their residents.

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Summary of the risk factor percentages and 95% confidence intervals estimated from the Inter-Tribal Heart Project (ITHP) survey

The percentages for each of the risk factors listed in this report are *estimates* obtained from the 1,376 people who participated in the survey. These estimates are assumed to reflect the *true* percentages for the ITHP communities. However, the true percentages could be obtained only if everyone in the communities participated in the survey. The 95% confidence intervals give an indication of the accuracy of the estimated percentages. For each risk factor, we can be 95% certain that the interval between the lower limit and the upper limit includes the true percentage for the ITHP communities.

Table Number	Title	Estimated Percentage	95% Confidence Intervals Lower Limit	95% Confidence Intervals Upper Limit
2.2	Percent of participants who needed medical care within the previous 2 years but did not obtain it	12	10	14
3.1	Percent of participants who reported having a heart attack	9	8	10
3.2	Percent of participants who reported having a stroke	4	3	5
4.1	Percent of participants with high blood pressure	31	29	33
4.2	Percent of participants with high blood pressure who are taking antihypertensive medication	60	55	65
4.3	Among participants with high blood pressure, the percent who take antihypertensive medication and who have their blood pressure level under control	28	24	32

Table Number	Title	Estimated Percentage	95% Confidence Intervals Lower Limit	Upper Limit
4.4	Percent of participants with high blood pressure using non-pharmacolic activities to lower their blood pressure level	60	55	65
4.5	Percent of participants with high blood pressure who are doing the following activities to lower their blood pressure level:			
	Weight	48	43	53
	Exercising	23	27	31
	Following a low salt diet	45	40	50
5.1	Percent of participants with diabetes mellitus	26	24	28
5.2	Percent of participants with impaired glucose tolerance	12	10	14
6.1	Percent of paticipants with an elevated cholesterol level	22	20	24
6.2	Percent of participants who have had their cholesterol level tested within the previous 5 years	60	58	62
6.3	Percent of participants with elevated cholesterol levels who have not been informed	48	42	54
6.4	Percent of participants with elevated cholesterol levels who have been given information to help reduce fat or cholesterol in their diet	37	31	43
6.5	Percent of participants with elevated cholesterol levels who are currently being prescribed medication to lower their cholesterol level	11	7	15

Table Number	Title	Estimated Percentage	95% Confidence Intervals Lower Limit	Upper Limit
7.1	Percent of participants who currently use tobacco:			
	Smoke cigarettes	52	50	54
	Smoke cigarettes on weekends only	2	1	3
	Smoke a cigar or pipe	3	2	4
	Chew tobacco	3	2	4
	Any tobacco smoking	55	53	57
	Any tobacco use	57	55	59
7.2	Percent of participants who currently smoke cigarettes	52	50	54
7.3	Average number of cigarettes smoked per day	15	14	16
7.4	Percent of smokers among the participants who have ever quit smoking for 1 week	37	34	40
8.1	Percent of participants who are overweight	64	62	66
8.2	Percent of participants who are obese	35	33	37
9.1	Levels of leisure-time physical activity			
	Inactive	28	26	30
	Regularly Active	36	34	38
9.2	Average time spent walking on a typical work day	4.2	3.9	4.4
9.3	Percent of participants who took part in an exercise or physical activity program during the past year	7	6	8
9.4	Percent of participants exercising regularly to control their weight	36	34	38

Table Number	Title	Estimated Percentage	95% Confidence Intervals Lower Limit	Upper Limit
10.1	Percent of participants who consume five or more fruits and vegetables per day	16	14	18
10.2	Percent of participants who consume six or more grain products per day	1	0.5	1.5
10.3	Percent of participants who avoid using salt at the table	23	21	25
10.4	Percent of participants who avoid adding fat to vegetables or who use liquid vegetable fats	45	43	47
10.5	Percent of participants who want more nutritional information about food eaten in restaurants	60	58	62
11.1	Percent of participants who have experienced at least a moderate amount of stress in the past two weeks	48	46	50
11.2	Degree of hopelessness during the past month, Total Population:			
	Moderate hopelessness	26	24	28
	Severe hopelessness	5	4	6
11.3	Degree of hopelessness during the past month, Women Only:			
	Moderate hopelessness	29	26	32
	Severe hopelessness	7	6	8
11.4	Degree of hopelessness during the past month, Men Only:			
	Moderate hopelessness	20	17	23
	Severe hopelessness	3	2	4

Table Number	Title	Estimated Percentage	95% Confidence Intervals Lower Limit	Upper Limit
11.5	Percent of participants who believe that religion or spirituality is important in their lives	76	74	78
11.6	Percent of participants who believe that they have not had a fair opportunity to achieve their goals in life	26	24	28
12.1	Percent of participants who reported that certain conditions increase the risk of heart disease:	94	93	95
	Worry/stress	88	86	90
	High blood pressure	92	91	93
	Diabetes	79	77	81
	Overweight	93	92	94
	High fat diet	89	88	90
	Family History of heart disease	87	85	89
	High cholesterol	90	89	91
12.2	Awareness of cardiovascular disease risk reduction programs in the community	29	27	31
12.3	Participation during the previous year in programs to reduce the risk of heart disease.	9	8	10
	Weight loss program	5	4	6
	Blood pressure control	3	2	4
	Physical activity	7	6	8
	Participate in smoking cessation	2	1	3

Inter-Tribal Heart Project:

Tables

Table 1.1

Demographic Characteristics of the Participants

Inter-Tribal Heart Project, 1992-1994

	Women		Men		Total	
	Number	*Percent*	Number	*Percent*	Number	*Percent*
Age Group						
25-44	408	*47*	202	*40*	610	*44*
45-64	341	*39*	238	*47*	579	*42*
65+	117	*14*	69	*14*	186	*14*
Education						
<12 Years	244	*28*	164	*32*	408	*30*
High School Graduate	284	*33*	157	*31*	441	*32*
Technical School	145	*17*	88	*17*	233	*17*
Any College	183	*21*	95	*19*	278	*20*
Missing/Refused	10	*1*	6	*1*	16	*1*
Household Income						
<$15,000	387	*45*	199	*39*	586	*43*
≥$15,000	389	*45*	261	*51*	650	*47*
Missing/Refused	90	*10*	50	*10*	140	*10*
Currently Employed						
No	326	*38*	214	*42*	540	*39*
Yes	534	*62*	290	*57*	824	*60*
Missing/Refused	6	*1*	6	*1*	12	*1*
Total	866	*100*	510	*100*	1376	*100*

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 1.2

Participation Rates in the Inter-Tribal Heart Project

Inter-Tribal Heart Project, 1992-1994

	Women		Men		Total	
	Number	*Percent*	Number	*Percent*	Number	*Percent*
Participated	849	***71***	527	***58***	1376	***67***
Refused	177	***15***	221	***25***	399*	***19***
No Shows	153	***13***	141	***16***	294	***14***
Total Eligible Population	1179	***100***	889	***100***	2068	***100***

*Gender status was unknown for 1 person

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 2.1

Usual Source of Health Care and Average Distance Travelled to that Location

Inter-Tribal Heart Project, 1992-1994

	Percent	*Average Distance (Miles)*
IHS or tribal clinic	87	11
Traditional ways or healer	1	85
Private physician	5	18
Non-IHS or non-tribal facility	6	30
Hospital emergency room	1	21

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 2.2

Percent of Participants Who Needed Medical Care Within the Previous Two Years But Did Not Obtain It

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	15	16	16
45-64	11	9	10
65+	9	6	8
Education			
<12 Years	11	12	12
High School Graduate	15	11	14
Technical School	8	8	8
Any College	15	14	14
Household Income			
<$15,000	11	13	12
≥$15,000	13	10	12
Currently Employed			
No	12	13	12
Yes	13	10	12
Total	***13***	***11***	***12***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 3.1

Percent of Participants Who Report Having Experienced a Heart Attack

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	1	2	1
45-64	7	18	11
65+	26	23	25
Education			
<12 Years	11	12	11
High School Graduate	6	17	10
Technical School	3	9	5
Any College	5	7	6
Household Income			
<$15,000	10	14	11
≥$15,000	4	10	6
Currently Employed			
No	12	18	14
Yes	3	8	5
Total	***7***	***13***	***9***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 3.2

Percent of Participants Who Report Having Experienced a Stroke

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	1	0	1
45-64	4	5	5
65+	13	16	14
Education			
<12 Years	5	7	5
High School Graduate	4	3	4
Technical School	1	6	3
Any College	2	3	3
Household Income			
<$15,000	5	9	7
≥$15,000	1	2	2
Currently Employed			
No	6	8	7
Yes	1	2	2
Total	***4***	***5***	***4***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 4.1

Percent of Participants with High Blood Pressure

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	11	25	16
45-64	34	42	37
65+	63	62	63
Education			
<12 Years	41	49	44
High School Graduate	20	41	28
Technical School	21	25	22
Any College	23	24	24
Household Income			
<$15,000	32	42	35
≥$15,000	21	35	26
Currently Employed			
No	37	44	39
Yes	21	33	25
Total	***27***	***38***	***31***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 4.2

Percent of Participants with High Blood Pressure Who Are Taking Antihypertensive Medication

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	48	35	41
45-64	72	66	69
65+	58	58	58
Education			
<12 Years	63	52	58
High School Graduate	61	55	58
Technical School	63	68	65
Any College	70	52	64
Household Income			
<$15,000	68	52	61
≥$15,000	64	59	61
Currently Employed			
No	61	56	59
Yes	66	55	61
Total	***63***	***55***	***60***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 4.3

Among the Participants with High Blood Pressure, the Percent Who Take Antihypertensive Medication And Who Have Their Blood Pressure Under Control

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	32	22	26
45-64	38	26	33
65+	23	14	20
Education			
<12 Years	27	15	22
High School Graduate	33	28	30
Technical School	33	32	33
Any College	47	26	39
Household Income			
<$15,000	32	17	26
≥$15,000	41	32	36
Currently Employed			
No	29	17	24
Yes	36	28	32
Total	***32***	***22***	***28***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 4.4

Percent of Participants with High Blood Pressure Who Are Doing the Following Activities to Lower Their Blood Pressure Levels, by Gender

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Watching weight	50	46	48
Exercising	25	28	27
Following a low salt diet	47	41	45

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 4.5

Percent of Participants with High Blood Pressure Who Are Doing the Following Activities to Lower Their Blood Pressure Levels, by Age Group

Inter-Tribal Heart Project, 1992-1994

	25-44 (%)	*45-64 (%)*	*65+ (%)*
Watching weight	30	54	53
Exercising	14	33	24
Following a low salt diet	25	51	48

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 4.6

Percent of Participants with High Blood Pressure Using Nonpharmacologic Activities to Lower Their Blood Pressure Levels

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	41	35	38
45-64	71	69	70
65+	61	56	59
Education			
<12 Years	59	50	55
High School Graduate	67	55	61
Technical School	63	73	67
Any College	63	70	65
Household Income			
<$15,000	66	57	62
≥$15,000	63	60	62
Currently Employed			
No	59	53	56
Yes	65	61	63
Total	***62***	***57***	***60***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 5.1

Percent of Participants with Diabetes Mellitus

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	9	8	9
45-64	40	32	36
65+	50	49	50
Education			
<12 Years	38	30	35
High School Graduate	24	23	23
Technical School	20	16	18
Any College	21	20	21
Household Income			
<$15,000	32	28	30
≥$15,000	19	20	19
Currently Employed			
No	35	33	34
Yes	21	17	20
Total	***27***	***25***	***26***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 5.2

Percent of Participants with Impaired Glucose Tolerance

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	8	8	8
45-64	19	11	15
65+	16	7	12
Education			
<12 Years	17	9	14
High School Graduate	13	10	12
Technical School	9	7	8
Any College	12	12	12
Household Income			
<$15,000	14	9	13
≥$15,000	13	10	12
Currently Employed			
No	17	9	13
Yes	11	10	11
Total	***13***	***9***	***12***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 6.1

Percent of Participants with Elevated Cholesterol Levels

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	11	20	14
45-64	29	30	30
65+	27	13	22
Education			
<12 Years	26	25	25
High School Graduate	18	23	20
Technical School	17	24	19
Any College	21	22	21
Household Income			
<$15,000	23	20	22
≥$15,000	17	27	21
Currently Employed			
No	25	22	24
Yes	18	24	20
Total	***20***	***24***	***22***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 6.2

Percent of Participants Who Have Had Their Cholesterol Level Tested Within the Previous Five Years

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	50	46	49
45-64	74	68	72
65+	63	61	62
Education			
<12 Years	56	52	55
High School Graduate	61	60	61
Technical School	61	63	62
Any College	71	65	69
Household Income			
<$15,000	58	51	56
≥$15,000	67	70	68
Currently Employed			
No	56	55	56
Yes	65	62	64
Total	***61***	***58***	***60***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 6.3

Percent of Participants with Elevated Cholesterol Levels Who Have Not Been Informed

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	66	61	64
45-64	35	42	38
65+	59	44	56
Education			
<12 Years	59	61	60
High School Graduate	41	44	43
Technical School	46	48	47
Any College	37	38	37
Household Income			
<$15,000	48	62	52
≥$15,000	38	41	40
Currently Employed			
No	56	50	54
Yes	40	49	44
Total	***47***	***48***	***48***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 6.4

Percent of Participants with Elevated Cholesterol Levels Who Have Been Given Information to Help Reduce Fat/Cholesterol in Their Diet

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	25	27	26
45-64	46	42	44
65+	31	11	27
Education			
<12 Years	29	24	27
High School Graduate	47	36	43
Technical School	33	43	38
Any College	45	48	46
Household Income			
<$15,000	39	28	35
≥$15,000	44	40	42
Currently Employed	30	33	
No	45	37	31
Yes			41
Total	***38***	***34***	***37***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 6.5

Percent of Participants with Elevated Cholesterol Levels Who Are Currently Being Prescribed Medication to Lower Their Cholesterol Level

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	5	5	5
45-64	11	14	12
65+	19	11	17
Education			
<12 Years	14	10	13
High School Graduate	6	14	9
Technical School	0	10	4
Any College	18	10	15
Household Income			
<$15,000	8	10	9
≥$15,000	16	13	14
Currently Employed			
No	13	15	13
Yes	9	8	9
Total	***11***	***11***	***11***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 7.1

Percent of Participants Who Currently Use Tobacco

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Cigarette Smoking	52	51	52
Cigarette Smoking - Weekends Only	2	2	2
Cigar or Pipe Smoking	1	6	3
Chewing Tobacco	0	7	3
Any Tobacco Smoking	54	57	55
Any Tobacco Use	55	61	57

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 7.2

Percent of Participants Who Currently Smoke Cigarettes

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	60	65	62
45-64	52	47	50
65+	24	25	24
Education			
<12 Years	50	52	51
High School Graduate	52	50	51
Technical School	57	64	59
Any College	53	44	50
Household Income			
<$15,000	56	59	57
≥$15,000	48	46	47
Currently Employed			
No	50	52	51
Yes	54	52	53
Total	***52***	***51***	***52***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 7.3

Average Number of Cigarettes Smoked per Day

Inter-Tribal Heart Project, 1992-1994

	Women (#)	*Men(#)*	*Total (#)*
Age Group			
25-44	13	16	14
45-64	14	19	16
65+	12	18	14
Education			
<12 Years	12	18	14
High School Graduate	13	17	14
Technical School	15	19	17
Any College	14	16	15
Household Income			
<$15,000	12	17	14
≥$15,000	14	18	16
Currently Employed			
No	13	17	14
Yes	14	18	15
Total	***13***	***18***	***15***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 7.4

Percent of Smokers Among the Participants Who Have Ever Quit Smoking for One Week or More

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	27	22	25
45-64	36	44	39
65+	64	67	65
Education			
<12 Years	38	39	38
High School Graduate	32	41	35
Technical School	33	26	31
Any College	38	44	40
Household Income			
<$15,000	32	31	32
≥$15,000	40	45	42
Currently Employed			
No	38	40	39
Yes	34	37	35
Total	***35***	***38***	***37***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 8.1

Percent of Participants Who Are Overweight

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	60	51	57
45-64	75	68	72
65+	68	58	65
Education			
<12 Years	73	58	67
High School Graduate	67	56	63
Technical School	54	53	54
Any College	70	76	72
Household Income			
<$15,000	66	55	62
≥$15,000	66	64	66
Currently Employed			
No	66	56	62
Yes	67	63	66
Total	***67***	***60***	***64***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 8.2

Percent of Participants Who Are Obese

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	31	29	30
45-64	42	40	41
65+	32	29	31
Education			
<12 Years	39	32	36
High School Graduate	35	32	34
Technical School	32	35	33
Any College	36	42	38
Household Income			
<$15,000	36	29	34
≥$15,000	33	40	36
Currently Employed			
No	36	31	34
Yes	36	37	36
Total	***36***	***34***	***35***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 9.1

Percent of Participants Performing Various Levels of Physical Activity in Their Leisure Time

Inter-Tribal Heart Project, 1992-1994

	Inactive			Regularly Active		
	Women (%)	Men (%)	Total (%)	Women (%)	Men (%)	Total (%)
Age Group						
25-44	22	12	19	37	43	39
45-64	39	22	32	35	40	37
65+	47	35	42	23	32	26
Education						
<12 Years	39	25	33	34	36	35
High School Graduate	28	15	23	35	45	38
Technical School	36	24	31	32	41	36
Any College	28	17	24	34	41	37
Household Income						
<$15,000	41	25	35	30	43	35
≥$15,000	25	16	21	37	39	38
Currently Employed						
No	39	26	34	30	40	34
Yes	28	16	24	37	40	38
Total	***32***	***20***	***28***	***34***	***40***	***36***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 9.2

Average Number of Hours Spent Walking on a Typical Work Day

Inter-Tribal Heart Project, 1992-1994

	Women (Hours)	*Men (Hours)*	*Total (Hours)*
Age Group			
25-44	4.0	4.7	4.3
45-64	4.1	4.4	4.2
65+	2.9	2.1	2.8
Education			
<12 Years	5.0	4.7	4.8
High School Graduate	4.5	5.0	4.7
Technical School	3.2	4.3	3.5
Any College	3.5	3.7	3.5
Household Income			
<$15,000	4.5	5.3	4.8
≥$15,000	3.7	4.2	3.9
Hours Worked/Week			
None	0	1.0	1.0
1-20 hrs/week	4.0	3.4	3.9
21-40 hrs/week	4.0	4.7	4.2
>40 hrs/week	3.8	4.3	4.1
Total	***4.0***	***4.5***	***4.2***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 9.3

Percent of Participants Who Took Part in an Exercise or Physical Activity Program During the Past Year

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	8	7	8
45-64	8	5	7
65+	5	3	4
Education			
<12 Years	2	4	3
High School Graduate	9	3	7
Technical School	12	6	10
Any College	10	13	11
Household Income			
<$15,000	4	5	4
≥$15,000	12	7	10
Currently Employed			
No	5	4	5
Yes	9	7	8
Total	***8***	***6***	***7***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 9.4

Percent of Participants Who Exercise Regularly to Control Their Weight

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	34	37	35
45-64	35	40	37
65+	37	41	38
Education			
<12 Years	34	38	36
High School Graduate	32	36	33
Technical School	40	43	41
Any College	36	41	37
Household Income			
<$15,000	36	40	37
≥$15,000	32	39	35
Currently Employed			
No	32	36	33
Yes	37	41	38
Total	***35***	***39***	***36***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 10.1

Percent of Participants Who Consume Five or More Fruits and Vegetables per Day

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	15	16	16
45-64	21	12	17
65+	18	10	15
Education			
<12 Years	19	13	17
High School Graduate	15	15	15
Technical School	21	10	17
Any College	20	15	18
Household Income			
<$15,000	21	13	18
≥$15,000	16	14	15
Currently Employed			
No	22	12	18
Yes	16	14	15
Total	***18***	***13***	***16***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 10.2

Percent of Participants Who Consume Six or More Grain Products per Day

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	1	2	2
45-64	1	1	1
65+	2	1	2
Education			
<12 Years	1	2	1
High School Graduate	1	1	1
Technical School	1	2	2
Any College	2	1	1
Household Income			
<$15,000	1	2	1
≥$15,000	1	2	1
Currently Employed			
No	2	1	2
Yes	1	2	1
Total	***1***	***2***	***1***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 10.3

Percent of Participants Who Avoid Using Salt at the Table

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	16	14	15
45-64	29	28	29
65+	38	23	32
Education			
<12 Years	26	20	24
High School Graduate	22	24	23
Technical School	19	19	19
Any College	29	25	28
Household Income			
<$15,000	24	19	22
≥$15,000	25	27	26
Currently Employed			
No	28	21	25
Yes	22	23	22
Total	***24***	***22***	***23***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 10.4

Percent of Participants Who Avoid Adding Fat to Vegetables or Who Use Liquid Vegetable Fats

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	47	41	45
45-64	52	45	49
65+	33	35	34
Education			
<12 Years	41	40	41
High School Graduate	48	39	45
Technical School	52	48	51
Any College	52	46	50
Household Income			
<$15,000	43	42	43
≥$15,000	51	43	48
Currently Employed			
No	43	41	42
Yes	51	43	48
Total	***47***	***42***	***45***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 10.5

Prevalence of Persons Who Want More Nutritional Information About Food Eaten in Restaurants

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	65	57	63
45-64	63	56	60
65+	56	33	48
Education			
<12 Years	59	44	53
High School Graduate	64	54	61
Technical School	70	61	67
Any College	63	64	64
Household Income			
<$15,000	59	49	56
≥$15,000	69	60	66
Currently Employed			
No	60	46	54
Yes	66	60	64
Total	***63***	***53***	***60***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 11.1

Percent of Participants Who Have Experienced at Least a Moderate Amount of Stress in the Past Two Weeks

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	57	52	56
45-64	50	42	47
65+	37	17	30
Education			
<12 Years	41	36	39
High School Graduate	52	44	49
Technical School	57	49	54
Any College	64	48	59
Household Income			
<$15,000	50	40	47
≥$15,000	57	46	53
Currently Employed			
No	46	37	42
Yes	56	48	53
Total	***52***	***43***	***48***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 11.2

Degree of Hopelessness During the Past Month, Women

Inter-Tribal Heart Project, 1992-1994

	Women		
	None/Low (%)	*Moderate (%)*	*Severe (%)*
Age Group			
25-44	57	35	7
45-64	67	23	8
65+	67	24	4
Education			
<12 Years	62	29	7
High School Graduate	61	31	7
Technical School	64	28	6
Any College	66	28	5
Household Income			
<$15,000	59	32	8
≥$15,000	66	28	5
Currently Employed			
No	62	29	7
Yes	63	29	6
Total	***62***	***29***	***7***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 11.3

Degree of Hopelessness During the Past Month, Men

Inter-Tribal Heart Project, 1992-1994

	Men		
	None/Low (%)	*Moderate (%)*	*Severe (%)*
Age Group			
25-44	69	25	2
45-64	75	18	3
65+	71	12	3
Education			
<12 Years	67	20	5
High School Graduate	77	18	3
Technical School	78	18	1
Any College	73	25	2
Household Income			
<$15,000	70	22	5
≥$15,000	78	19	2
Currently Employed			
No	65	22	6
Yes	79	19	1
Total	***72***	***20***	***3***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 11.4

Degree of Hopelessness During the Past Month, Total Population

Inter-Tribal Heart Project, 1992-1994

	Total Population		
	None/Low (%)	Moderate (%)	Severe (%)
Age Group			
25-44	61	32	5
45-64	70	21	6
65+	68	19	4
Education			
<12 Years	64	25	6
High School Graduate	66	26	5
Technical School	70	24	4
Any College	68	27	4
Household Income			
<$15,000	63	28	7
≥$15,000	71	24	4
Currently Employed			
No	63	26	7
Yes	69	26	4
Total	***66***	***26***	***5***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 11.5

Percent of Participants Who Believe that Religion or Spirituality is Important in Their Lives

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	73	64	70
45-64	85	74	80
65+	91	70	83
Education			
<12 Years	80	69	76
High School Graduate	78	70	75
Technical School	80	64	74
Any College	88	77	84
Household Income			
<$15,000	80	67	75
≥$15,000	83	75	80
Currently Employed			
No	82	71	78
Yes	80	69	76
Total	***80***	***69***	***76***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 11.6

Percent of Participants Who Believe that They Have Not Had a Fair Opportunity to Achieve Their Goals in Life

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	31	25	29
45-64	27	20	24
65+	25	13	20
Education			
<12 Years	36	24	31
High School Graduate	32	26	30
Technical School	25	14	21
Any College	19	15	17
Household Income			
<$15,000	39	25	34
≥$15,000	21	16	19
Currently Employed			
No	32	23	29
Yes	27	19	25
Total	***29***	***21***	***26***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 12.1

Percent of Participants Who Recognize Selected Conditions as Risk Factors for Heart Disease

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Cigarettes	96	92	94
Worry/Stress	91	84	88
High Blood Pressure	94	89	92
Diabetes	82	74	79
Overweight	96	89	93
High Fat Diet	92	84	89
Family History of IHD	90	82	87
High Cholesterol	92	87	90

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 12.2

Awareness of Cardiovascular Disease Risk Reduction Programs in the Community

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Age Group			
25-44	35	25	31
45-64	30	26	29
65+	26	19	24
Education			
<12 Years	25	15	21
High School Graduate	32	29	31
Technical School	35	27	32
Any College	39	31	36
Household Income			
<$15,000	25	17	23
≥$15,000	40	31	36
Currently Employed			
No	25	21	23
Yes	37	27	33
Total	***32***	***24***	***29***

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.

Table 12.3

Participation During the Previous Year in Programs to Reduce the Risk of Heart Disease

Inter-Tribal Heart Project, 1992-1994

	Women (%)	*Men (%)*	*Total (%)*
Diet and Heart Disease	11	6	9
Weight Loss	7	3	5
Blood Pressure Control	3	3	3
Physical Activity	8	6	7
Smoking Cessation	2	2	2

Data collected by the Menominee Tribal Clinic, the Red Lake Comprehensive Health Services, the White Earth PHS Indian Health Center, the Indian Health Service, and the Centers for Disease Control and Prevention.